

Instruction manual

# AQUACIAT POWER I LD

## CLASSIC RHE/RHE-Z/PHE & VERTICALE PHE



EN7565702-01

11 - 2020

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The images in these documents are solely for illustration and are not contractual. The manufacturer reserves the right to change the design at any time without notice.

# 1 - FOREWORD

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## 1.1 - GENERAL INFORMATION

Installation, start-up and maintenance operations for this equipment may be dangerous if certain factors particular to this installation, such as the presence of electrical and live components and the installation location, are not taken into account.

Only authorised, qualified installers and technicians, who have undergone specific training on the product in question, are permitted to install and start up this equipment.

During any servicing operations, all the recommendations and instructions given in the maintenance brochures, on the labels or in the instructions accompanying the equipment must be observed, along with any other applicable safety instructions.

- Observe all the regulations in the safety codes.
- Wear safety goggles and working gloves
- Handle heavy and bulky equipment with care when lifting, handling and setting down.

During normal use, this unit is intended to operate under the following site conditions:

- Maximum altitude: 1000 m,
- Minimum and maximum temperatures: -10 °C + 40 °C,
- Overvoltage category: III
- Pollution degree: 3

## 1.2 - PROTECTION AGAINST ELECTROCUTION

Only personnel qualified in accordance with the IEC (International Electrotechnical Commission) recommendations must be allowed to access the electrical components. It is particularly recommended that all the electrical supplies to the unit are switched off before any work is carried out. Cut the main power supply using the disconnect switch or circuit breaker.



**Important: the control system includes electronic components. These may cause or be subject to electromagnetic disturbance if they are not installed and used in accordance with these instructions.**

**Before carrying out any work on the frequency inverters (heat recovery wheel, etc.), disconnect the power supply and ensure that these are not live. After disconnection, you must wait 5 minutes before starting work (necessary for the capacitors to discharge).**

**Important: this equipment has been found to comply with the essential requirements of the following directives:**

- **Electromagnetic compatibility: 2014/30/EU**
- **Low voltage directive: 2014/35/EU**
- **Machinery Directive: 2006/42/EC**
- **Directive concerning the restriction of the use of hazardous substances in electrical and electronic equipment (RoHS): 2011/65/EU**

## 1.3 - USE

This appliance is not designed to be used by persons (including children) with limited physical, sensory or mental capabilities, or by persons with insufficient experience or knowledge, unless they are being supervised by a person responsible for their safety or have received instructions on the use of the appliance from such a person.

Children should be supervised to ensure that they do not play with the unit.



**For your safety, we recommend the use of PPE (Personal Protective Equipment)**

## 2 - RECEIPT

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**The installation and maintenance operations must be performed by qualified and experienced personnel.**  
**Follow the operating precautions to the letter when working on the unit. Labels have been placed on the unit to remind you of the safety instructions.**  
**As a general rule, follow all applicable safety regulations and standards.**  
**Damage to the Floway dual-flow air handling unit will be disregarded in case of failure to follow the instructions in this document.**

Each unit has a name plate bearing an identification number. This number must be quoted in all correspondence.

In accordance with Article 133-3 of the French Code of Commerce, the recipient is entirely responsible for checking the condition of the goods received. In the event of missing items, the customer must provide the exact number of parcels delivered. Any damaged or missing items must be specified on the delivery note in the presence of the driver before signing the delivery note. These comments must be confirmed to the carrier by registered letter within 3 business days. The comments "conditional" and "pending unwrapping" shall have no value. The customer must unwrap the goods in the presence of the driver. Damage/shortages must be noted at time of delivery and described in detail.

The unit must be stored in its packaging and sheltered from weather.

### **FLOWAY "Classic PHE", "Classic RHE/RHE-Z" and "Vertical PHE"**

- The 3 sizes of the "Vertical PHE" model and the 1000 size of the "Classic PHE" and "Classic RHE/RHE-Z" models are packaged units, delivered mounted on feet.
- Sizes > 1000 m<sup>3</sup>/h for the "Classic PHE" and "Classic RHE/RHE-Z" models are multi-block units, delivered assembled. The blocks can be split in order to facilitate their passage through doorways (see splitting procedure in the HANDLING part).
- Sizes 10000 and 15000 of the RHE-Z model are delivered in 2 blocks. You are responsible for assembling these yourself on site. Quick connectors enable the electrics for these blocks to be connected quickly and easily.

### 3 - HANDLING

The unit can be handled by slings, lifting beam or stacker.

In all cases, the lifting point has to be at the base of the unit. For packaged units or assembled multi-block units, the centre of gravity is at the centre of the unit.

**This operation will be performed by qualified personnel.**



The unit must be handled with care, and only in the horizontal position. If the unit is handled by a lifting beam + slings, tubes need to be placed in the holes provided in the support feet.

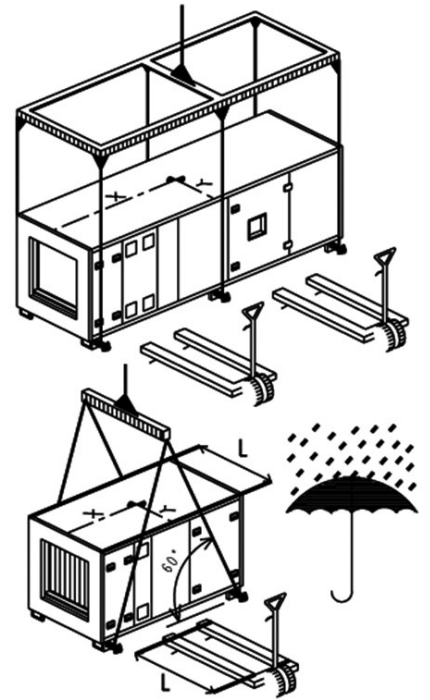


**Ensure that the crane hook adapter is large enough to prevent the belts applying any pressure to the AHU casing. Furthermore, ensure that the steel tubes are secured to prevent any movement.**



If the above-mentioned lifting methods cannot be used, the unit may be lifted using a forklift truck, taking great care not to dent the lower panel (use forks of a sufficient length).

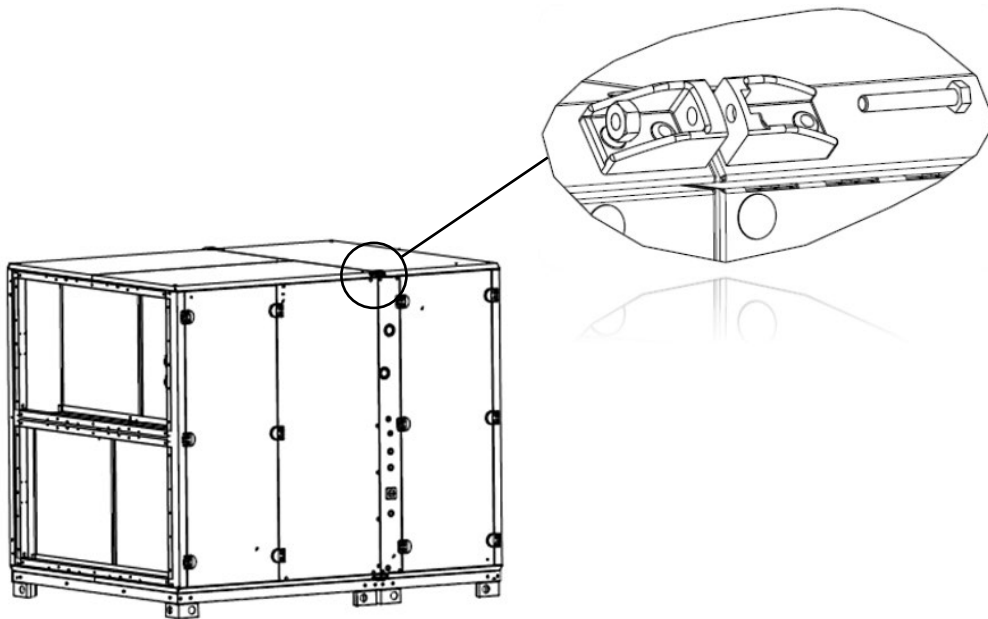
Follow the applicable handling rules.



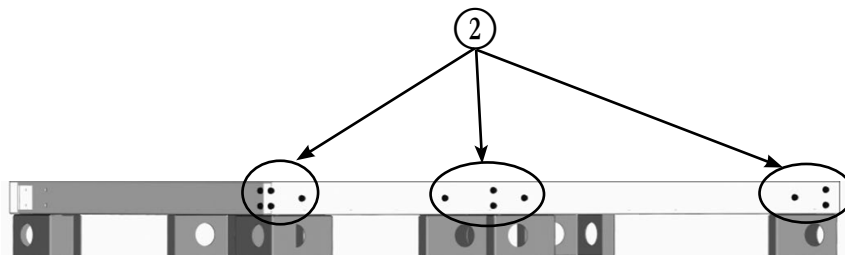
**“Classic PHE” and “Classic RHE/RHE-Z” models**

**Procedure for uncoupling Floway multi-blocks or assembling the 2 blocks for the RHEZ 10000 & 15000**

1 Remove the 4 nuts and screws



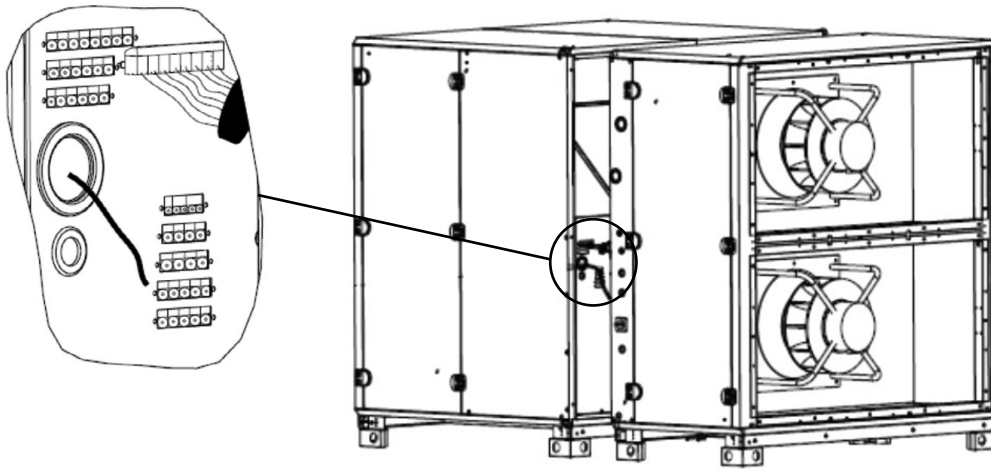
2 Undo the screws on each beam and remove them.



### 3 - HANDLING

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3 **Disconnect** the electrical connectors on the control and disconnect switch.



4 You can now separate the blocks.

Note: Follow the procedure in reverse to re-couple the blocks, particularly for the RHE Z10000 & 15000.



**When uncoupling the blocks, ensure that the 18X10 PVC gasket located between the blocks remains correctly in place to guarantee a perfect seal. If necessary, fit one.**

**NB:** if there is a roof, remove it first in accordance with the instructions given on the roof fitting plan (see technical specifications).

#### **FLOWAY “Classic PHE”, “Classic RHE/RHE-Z” and “Vertical PHE” models**

These models are placed directly on a flat, smooth floor. The flatness value must be the best possible, around one per thousand. Under normal conditions of use, there is no need to fix the unit to the floor.

The unit's support feet must be standing fully on their contact surface. It is important to allow sufficient service space to facilitate maintenance operations.

# 4 - DESCRIPTION OF THE UNIT & TECHNICAL CHARACTERISTICS

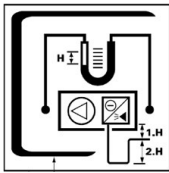
## 4.1 - DESCRIPTION OF THE UNIT

### Firm data plate

Réf. Produit / Item Ref.		Désignation / Description	
7219278.405377		XXXXXXXXXXXXXXXXXX	
An / Year N. Serie : Serial Nbr	Composant / Composant	Repère / Part	
02380021/0001		CTA 22 FDY	
TENSION / VOLTAGE	ELEC. ELEMENT	BATTERIE FRD	
230/400V 50HZ 2P			
P.ABSORBEE / INPUT	P.ABSORBEE / INPUT	REGIME	
0.75 KW			
INTENSITE / CURRENT	BATTERIE + / HEAT	FLUIDE / FLUID	
POIDS / WEIGHT SERVICE	REGIME	N° Déclaration CE	
182 KG			

This is fixed on the unit and shows the unit's specifications as well as the order number and code.

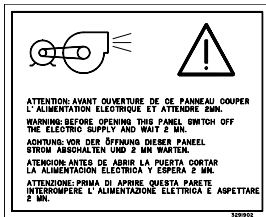
### Pictograms



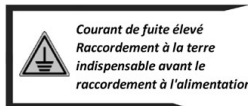
Condensate drain siphon.



Monitor the cleanliness of the filters



Danger: fan



Grounding compulsory



Danger: electrics box

## 4 - DESCRIPTION OF THE UNIT & TECHNICAL CHARACTERISTICS

### Weights and dimensions tables

#### Floway "Classic RHE"

Size	Dimensions (mm)			Weight of Unit 1 (kg) +/- 10%	Weight of Unit 2 (kg) +/- 10%	Total weight* +/- 10% (kg)
	Height	Length	Width			
1000	958	1360	810	-	-	201
2000	1158	510 +800	1010	169	140	309
3000	1359	800 + 800	1210	246	186	432
4000	1659	800 + 800	1510	327	231	558
5000	1659	800 + 800	1510	369	235	604
6000	1959	800 + 800	1810	427	275	702
7500	1959	800 + 800	1810	473	278	751
10 000	2090	1100 + 1100	1920	505	450	955
15 000	2340	1100 + 1200	2192	650	600	1250

#### Floway "Classic RHE-Z"

Size	Dimensions (mm)			Weight of Unit 1 (kg) +/- 10%	Weight of Unit 2 (kg) +/- 10%	Total weight* +/- 10% (kg)
	Height	Length	Width			
1000	958	1480	810	-	-	273
2000	1158	800+800	1010	261	121	382
3000	1359	1264+800	1210	403	153	556
4000	1659	1264+800	1510	472	182	654
5000	1659	1264+800	1510	521	183	704
6000	1959	1407+800	1810	541	201	742
7500	1959	1407+800	1810	607	204	811
10000	2090	1822+1100	1920	763	302	1065
15000	2340	1822+1200	2192	913	444	1357

#### Floway "Classic PHE"

Size	Dimensions (mm)			Weight of Unit 1 (kg) +/- 10%	Weight of Unit 2 (kg) +/- 10%	Total weight* +/- 10% (kg)
	Height	Length	Width			
1000	958	1580	810	-	-	200
2000	1158	1150 + 800	1010	200	150	350
3000	1359	1264 + 800	1210	275	190	465
4000	1659	1264 + 800	1510	350	230	580
6000	1959	1407 + 850	1810	460	305	765

#### Floway "Vertical PHE"

Size	Dimensions (mm)			Weight (kg) +/- 10%
	Height	Length	Width	
700	1385	1313	730	202
1500	1758	1593	832	330
2000	1901	1735	832	389

#### Additional box

Additional box size (CIAT)	Correspondence with FLOWAY model	Additional box dimensions	Additional box weight (kg)
1	Classic PHE/RHE/RHEZ 1000 Vertical PHE 700	589x400x810	49
2	Classic PHE/RHE/RHEZ 2000 Vertical PHE 1500 & 2000	689x400x1010	62
3	Classic PHE/RHE/RHEZ 3000	759x400x1210	68
4	Classic PHE/RHE/RHEZ 4000 & 5000	909x400x1510	88
5	Classic PHE/RHE/RHEZ 6000 & 7500	1059x400x1810	112



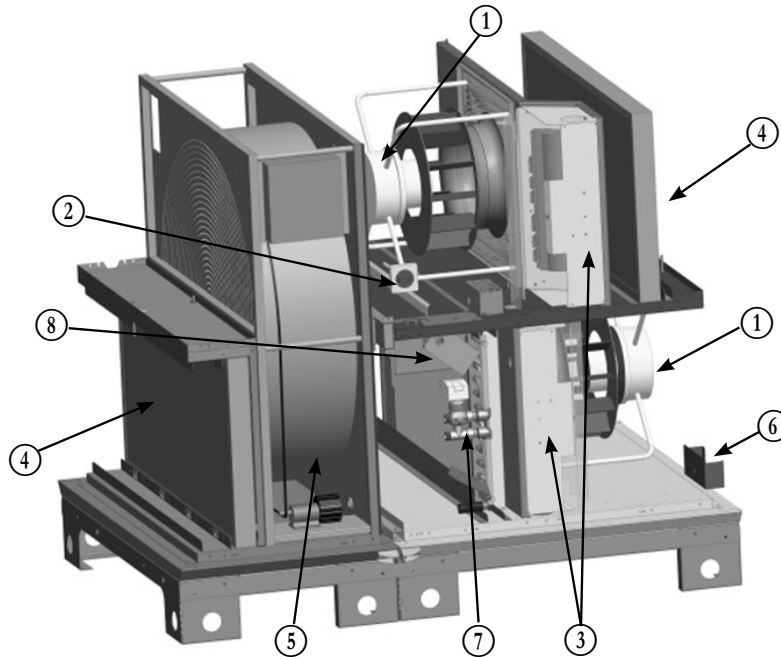
The dimensions in the tables above include all the components attached to the casing (hinges, collars, feet).



## 4 - DESCRIPTION OF THE UNIT & TECHNICAL CHARACTERISTICS

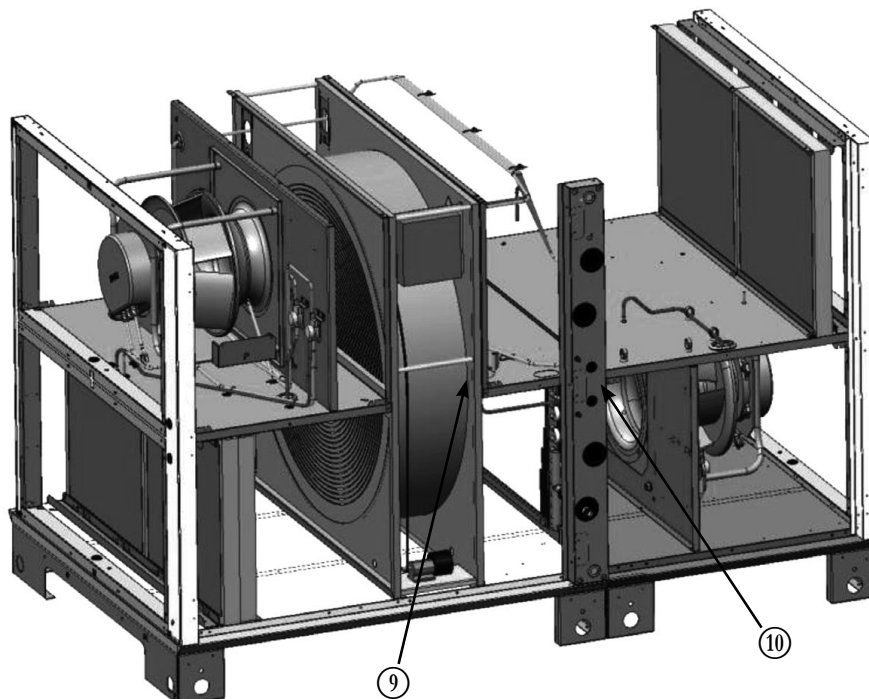
### 4.2 - LOCATION OF COMPONENTS

#### Floway "Classic RHE"



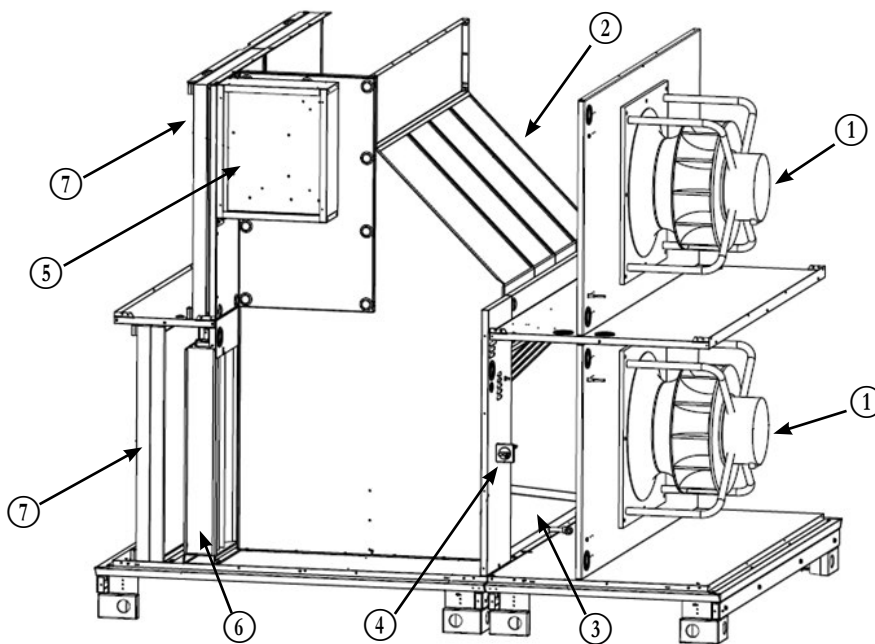
- 1 Fan motor assembly
- 2 General switch (on outer casing)
- 3 Controller electric box
- 3 Power electric box } Depending on the unit configuration
- 4 Filter
- 5 Rotary heat exchanger
- 6 "FLOWAY Control" display
- 7 Internal coil + valve mounting
- 8 Mixing option (damper + servomotor)
- 9 Purge sector on the wheel
- 10 Pressure connections P22 & P11

#### Floway "Classic RHE-Z"



## 4 - DESCRIPTION OF THE UNIT & TECHNICAL CHARACTERISTICS

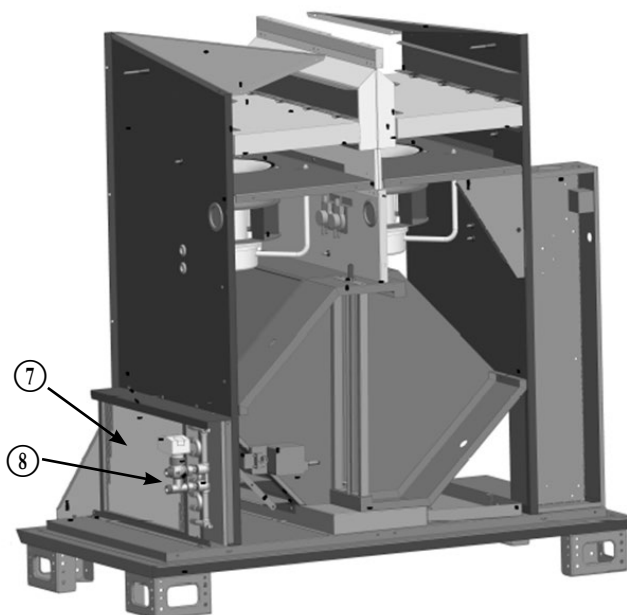
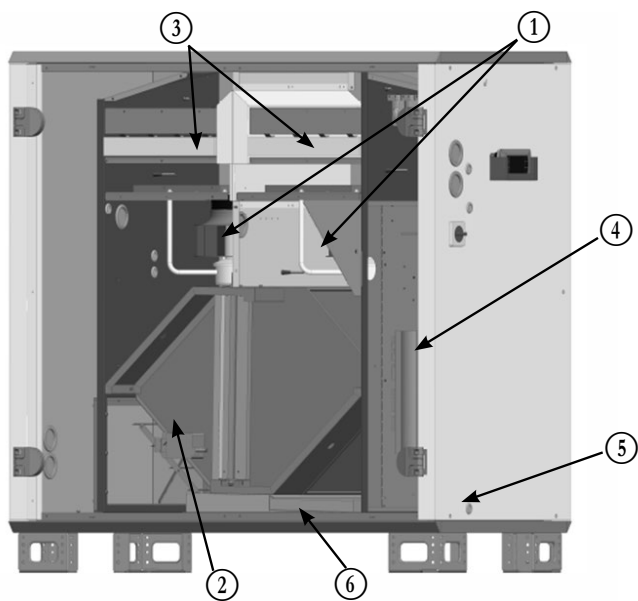
### Floway "Classic PHE"



- 1 Fan motor assembly
- 2 Plate heat exchanger
- 3 Drain pan
- 4 General switch (on outer casing)
- 5 Electrics box (control and power)
- 6 Damper
- 7 Filters

### Vertical FLOWAY PHE

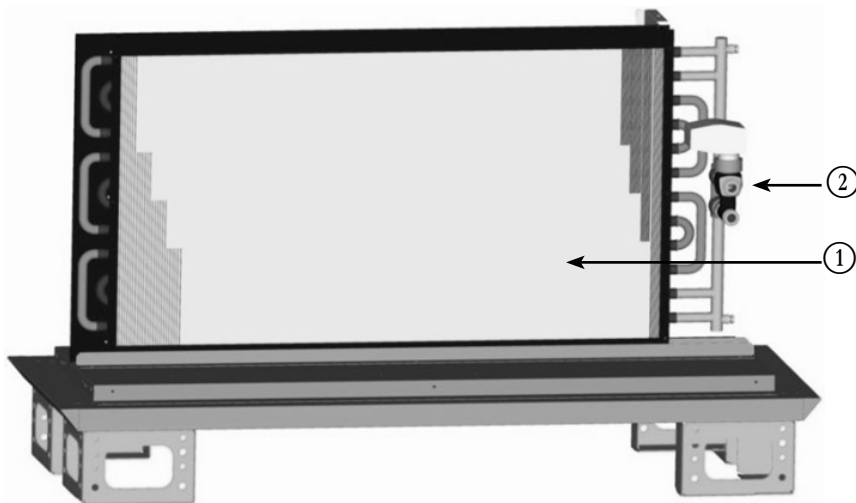
- 1 Fan motor assemblies
- 2 Plate heat exchanger
- 3 Filters
- 4 Power and controller electric box
- 5 Condensate drain
- 6 Condensate drain pan
- 7 Coil
- 8 Valve assembly



## 4 - DESCRIPTION OF THE UNIT & TECHNICAL CHARACTERISTICS

### Additional coil box

- 1 Coil
- 2 Valve assembly



### 4.3 - TECHNICAL CHARACTERISTICS

#### Air flow rates

##### Floway "Classic PHE"

Size	"Classic PHE"		
	Minimum flow rate (m³/h)	Nominal flow rate (m³/h)	Maximum flow rate (m³/h)
1000	300	1000	1200
2000	500	2000	2200
3000	700	3000	3700
4000	900	4500	5100
6000	1400	6000	6600

Operating limit temperature: -20°C/+ 60°C with preheating coil

##### Floway "Classic RHE/RHE-Z"

Size	"Classic RHE/RHE-Z"			
	Minimum flow rate (m³/h)	Nominal flow rate (m³/h)	Maximum flow rate (m³/h)	Maximum flow rate without cooling coil (m³/h)
1000	300	1000	1200	1450
2000	500	2000	2500	2800
3000	700	3000	3700	4500
4000	900	4500	5700	5700
5000	900	5000	5700	7000
6000	1400	6000	8500	8500
7500	1400	7500	8500	11000
10 000	2500	10 000	14 000	14000
15 000	3000	15 000	18 000	18000

Operating limit temperature: -30°C/+ 60°C

##### Vertical FLOWAY PHE

Size	Minimum flow rate (m³/h)	Nominal flow rate (m³/h)	Maximum flow rate (m³/h)
700	300	700	1200
1500	700	1500	2000
2000	700	2000	2600

Operating limit temperature: -20°C/+ 60°C with preheating coil

## 4 - DESCRIPTION OF THE UNIT & TECHNICAL CHARACTERISTICS

### Filters

#### M5 HEE filter:

Thickness: 48  
Fire rating: M1

#### F7 HEE filter:

Thickness: 48  
Fire rating: M1

#### F9 HEE filter:

Thickness: 48  
Fire rating: M1

### Floway "Classic PHE" and "Classic RHE/RHE-Z" filters

	Sizes						
	1000	2000	3000	4000	5000 *	6000	7500 *
Filter Dimensions x Number of cells/air flow	(704x327x48) x1	(452x435x48) x2	(552x535x48) x2	(466x685x48) x3	(466x685x48) x3	(566x835x48) x3	(566x835x48) x3

	Sizes	
	10 000 *	15 000 *
Universal dimensions	592 x 592 x 48	
	3	3
	287 x 592 x 48	
	3	4

### Floway "Vertical PHE" filters

	Sizes		
	700	1500	2000
Filter Dimensions x Number of cells/air flow	(330x597x48) x1	(471x697x48) x1	(541x697x48) x1

### Dual filtration

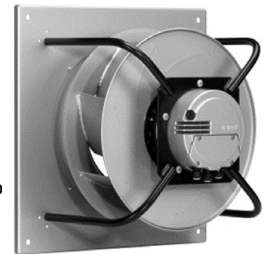
When dual-stage filtration is installed, the two stages of cells are installed on the same runner. This assembly is available on "Classic PHE", "Classic RHE/RHE-Z" and "Vertical PHE" models.

### Fan motor assembly

#### EC motor

This fan motor assembly is a direct coupling type plug fan with rotation speed adjustment via the portable micro-terminal, or by automatic adaptation to a given setpoint.

The Floway is equipped with 2 fan motor assemblies: 1 at the intake and 1 at the exhaust. It is also equipped with 4 fan motor assemblies for the 10,000 and 15,000 sizes of the "Classic RHE/RHE-Z" mo



### Floway "Classic PHE" and "Classic RHE/RHE-Z"

	Sizes								
	1000		2000		3000	4000 & 5000	6000 & 7500	10000	15000
Turbine type	250 (Alu.)	250 (PP)	280 (Alu.)	280 (PP)	355 (Alu.)	400 (Alu.)	450 (Alu.)	450 (Alu.)	500 (Alu.)
Number of fans per AHU	2	2	2	2	2	2	2	4	4
Nominal capacity (kW)	2x 0,5	2x 0,5	2x 1,04	2x 1,05	2x 1,9	2x 2,5	2x 2,9	4x 2,9	4x 3,8
Rated current (A)	2x 2,2	2x 2,3	2x 1,64	2x 1,6	2x 3	2x 3,8	2x 4,5	4x 4,5	4x 5,9

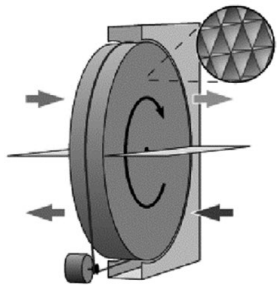
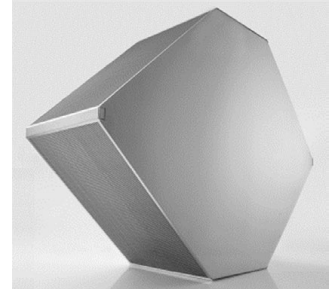
## 4 - DESCRIPTION OF THE UNIT & TECHNICAL CHARACTERISTICS

### Vertical FLOWAY PHE

	Sizes			
	700		1500 & 2000	
Turbine type	250 (Alu.)	250 (PP)	280 (Alu.)	280 (PP)
Number of fans per AHU	2	2	2	2
Nominal capacity (kW)	2x 0,5	2x 0,5	2x 1,04	2x 1,05
Rated current (A)	2x 2,2	2x 2,3	2x 1,64	2x 1,6

### Heat recovery unit

"Counter Flow" plate heat recovery unit (for "Ceiling-mounted PHE" and "Vertical PHE" model) equipped with a condensate drain pan, a motorised by-pass and controlled by the "Floway Control".



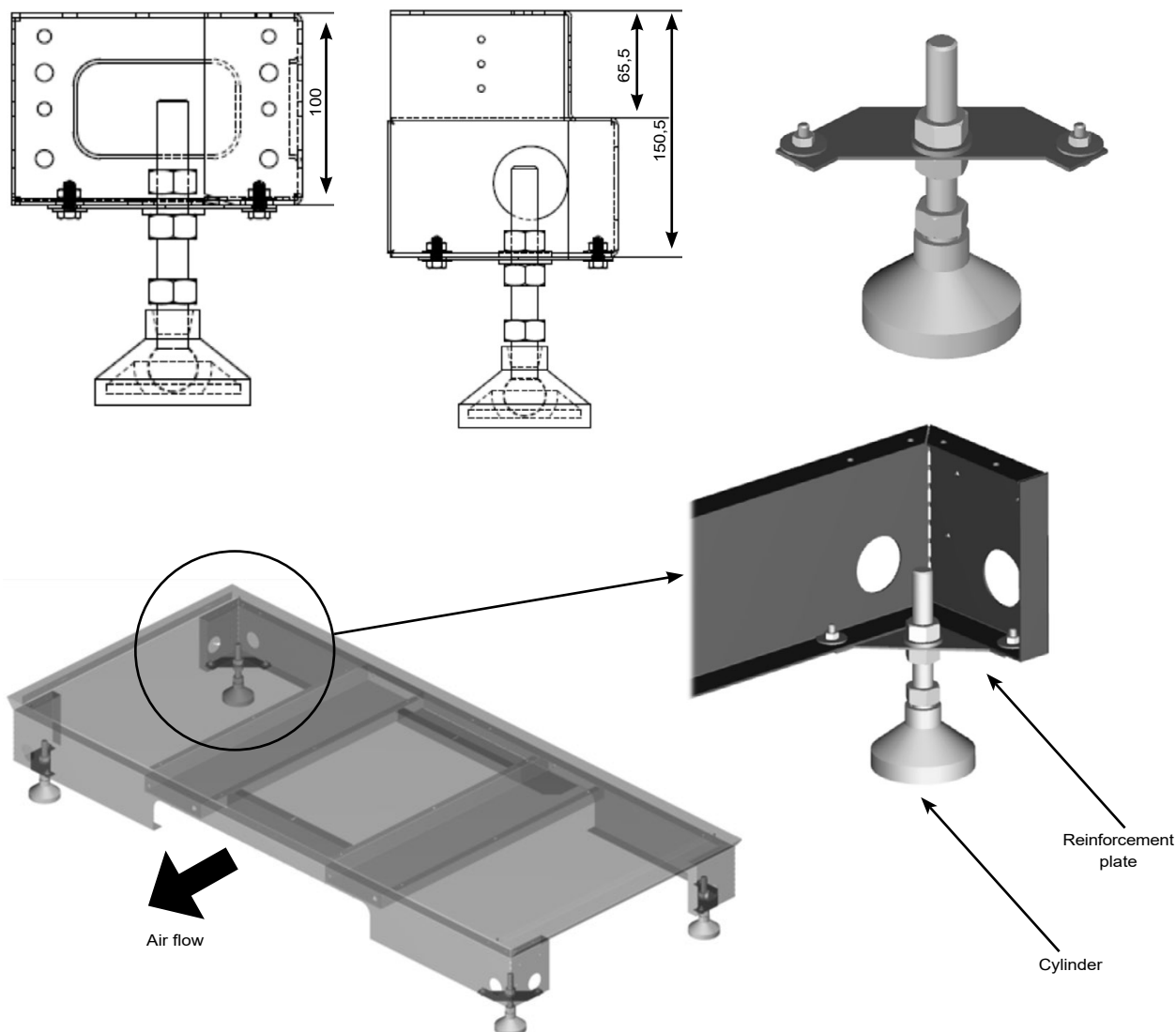
Variable speed rotary heat exchanger ("Classic RHE/ RHE-Z" model), controlled by "Floway Control".  
RHEZ model: equipped with a purge sector

## 4 - DESCRIPTION OF THE UNIT & TECHNICAL CHARACTERISTICS

### Options and accessories

#### Support feet and accessories (Floway "Vertical PHE" and "Classic RHE/RHE-Z" only)

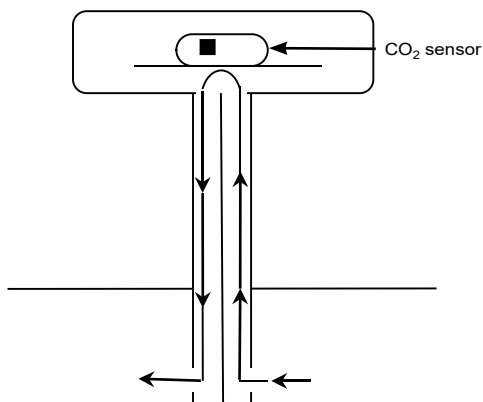
To obtain a greater clearance height, fit the adjustable feet (30 to 100 mm) underneath the standard feet.



#### CO<sub>2</sub> sensor

The CO<sub>2</sub> sensor must be positioned on the return air duct, so that it can measure the CO<sub>2</sub> level emitted from the part(s) treated. This sensor is supplied as a spare part and the manual for this is included in its packaging.

#### Operating principle



To configure the CO<sub>2</sub> level activation threshold, refer to the information on air quality for the town/city in which the AHU is installed.

# 4 - DESCRIPTION OF THE UNIT & TECHNICAL CHARACTERISTICS

## CO<sub>2</sub> concentration scale and the effects on humans:

(Our CO<sub>2</sub> sensor has an operating range of 0 to 2000 ppm)

CO <sub>2</sub> concentration	Effect on humans
380 - 480 ppm	Normal atmospheric level
600 - 800 ppm	Correct level for enclosed spaces
1000 - 1100 ppm	Tolerable level for enclosed spaces
5000 ppm	Upper limit for 8 hours of exposure

\* CO<sub>2</sub> sensor (sensor in duct): refer to the attached supplier manual

## Duct pressure sensor

The optional constant pressure mode is available in two versions

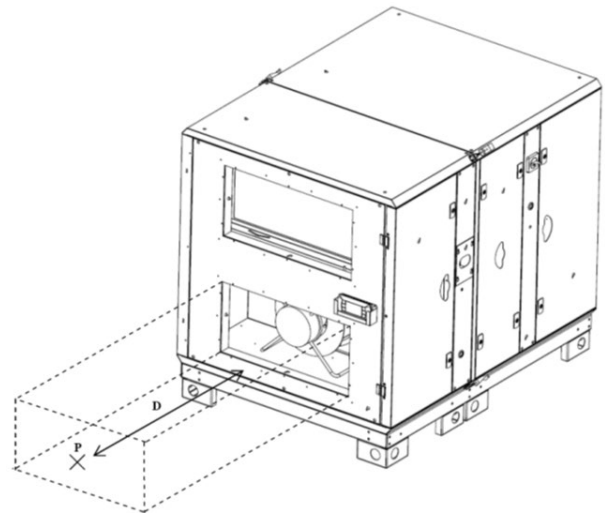
- Constant pressure on intake: the air intake fan is controlled to maintain the supply air duct pressure. The extraction fan copies the intake air flow. It is possible to create an offset between these two flow rates by configuring the M factor between 0.5 and 1.5 (see control manual).
- Constant pressure on both flow rates: each fan is controlled independently according to the pressure of the associated duct network. The intake and exhaust flow rates are not connected.

Two pressure values can be configured: Nominal pressure and Reduced pressure.

The duct pressure sensor must be positioned on the duct

network at a distance of **D = 2 Dh** (hydraulic Ø)

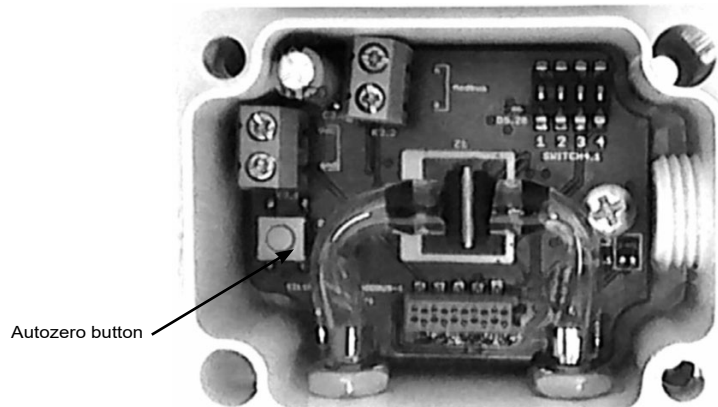
- If the duct is circular, Dh = Ø of the duct
- If the duct is rectangular  $DH = \frac{2 \times L \times l}{L + l}$



To guarantee the duct pressure sensor works correctly, an autozero must be performed on system start-up.

To do this, power up the sensor, disconnect the pipes from the 2 pressure tapings, marking their positions, and press the "autozero" button located inside the unit. Refit the two pressure tubes in their respective positions.

This autozero should be checked once a year.



## 4 - DESCRIPTION OF THE UNIT & TECHNICAL CHARACTERISTICS

### Changeover thermostat for mixed coil

The customer is responsible for installation on the hydraulic system.

The Changeover thermostat installed on the pipe must be integrated into the hydraulic pipe insulation

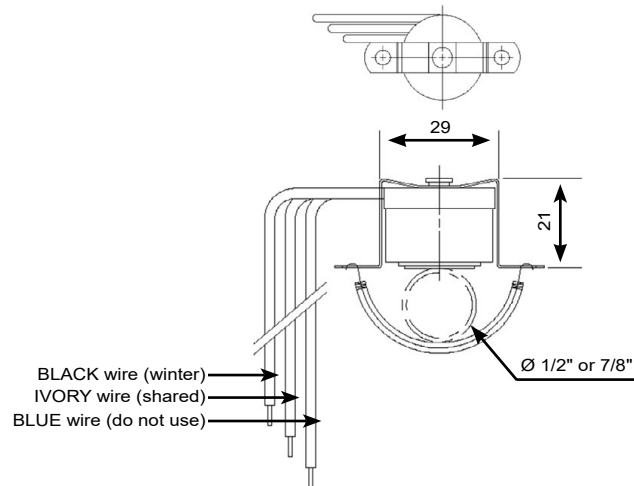
### Technical characteristics

Min. WINTER temp.: 28 °C

Min. SUMMER temp.: 18 °C

Breaking capacity: 5(3) A.

Cable length: 2500 mm



### Damper



The damper is not protected against the weather if the canopy option has not been selected.



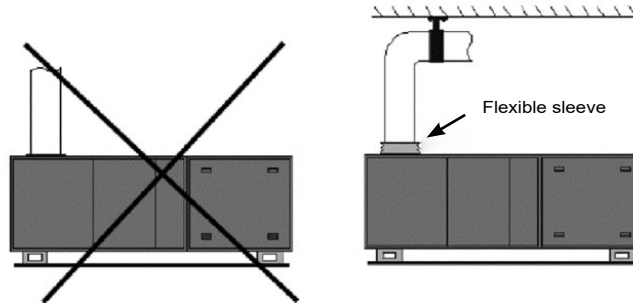
## 5 - INSTALLATION AND INSTALLATION CONNECTIONS



The installation of the equipment must comply with the regulations and standards of the recipient country  
The additional box must be positioned in the duct so that the temperature sensor is on the downstream side (air supply)

### Special recommendations:

- Connections must not place mechanical stresses on the unit.
- Keep all inspection doors closed while the unit is operating
- If fitted outdoors (Classic PHE and Classic RHE/RHE-Z models only), the units must be installed so as to withstand the climatic conditions in the installation location (risk of snow: height from ground/risk of wind: suitable mountings, swan-neck type electrical connection to the unit etc.).



Ensure all electrical components are earthed.

### 5.1 - OUTDOOR INSTALLATION ("Classic PHE" and "Classic RHE/RHE-Z" model only)

The installation of a "Floway" dual-flow unit outdoors requires a roof and a canopy to be fitted; these are usually supplied mounted\* and adapted to suit each configuration.

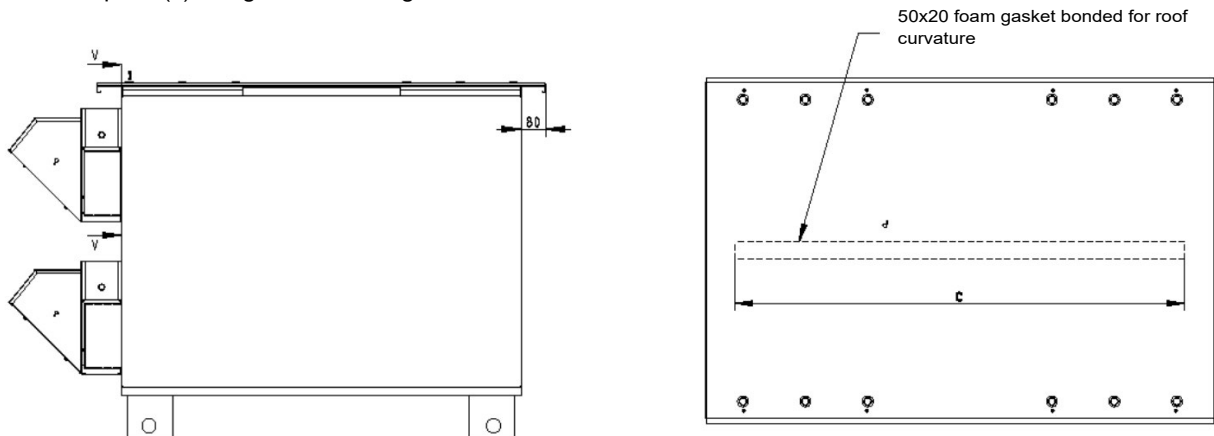
(\* Supplied in kit form if delivery of the elements assembled is not possible)

#### Fitting the roofs:

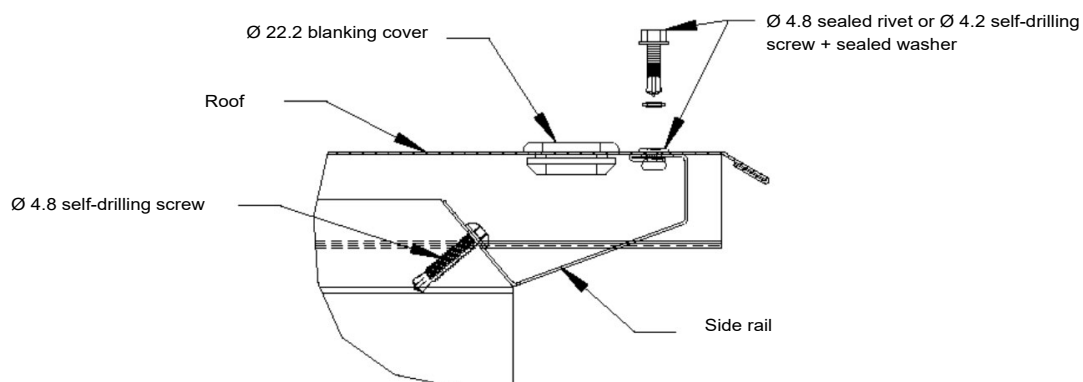
The roofs for Floway units are designed to provide sufficient protection against adverse weather conditions, as they overlap the edge of the unit by 80 mm.

#### Fitting procedure:

- 1 Fix the foam seal along the length of the unit. (50 x 20 foam seal).
- 2 Fix the roof panel(s) along the entire length of the unit.



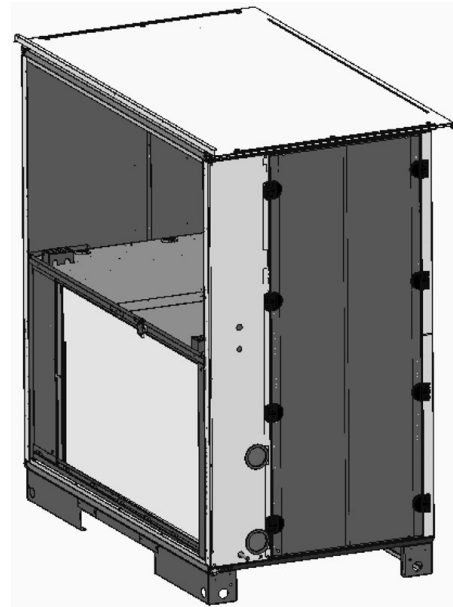
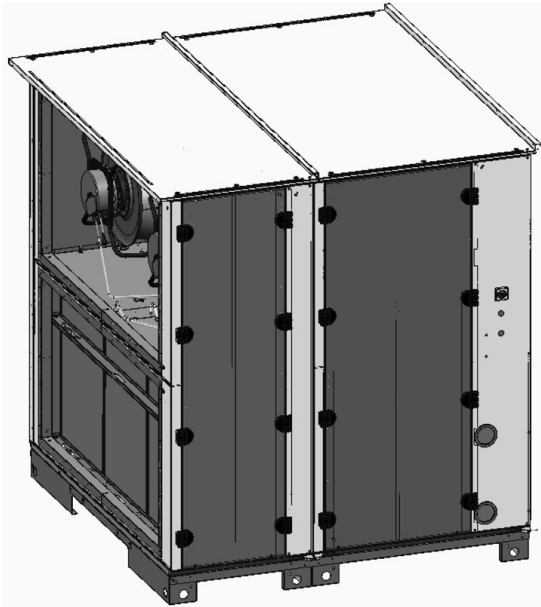
- 3 Assemble the roof on the unit as per the following diagram



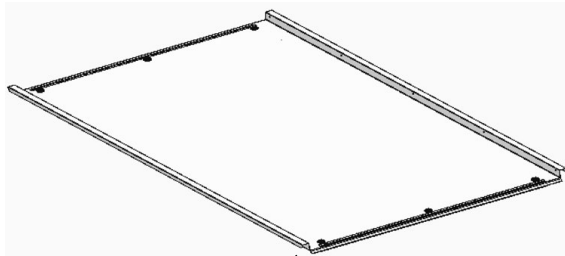
## 5 – INSTALLATION AND INSTALLATION CONNECTIONS

### 5.2 - FLOWAY RHEZ 10000 & 15000 : PROCEDURE FOR ROOF ASSEMBLY

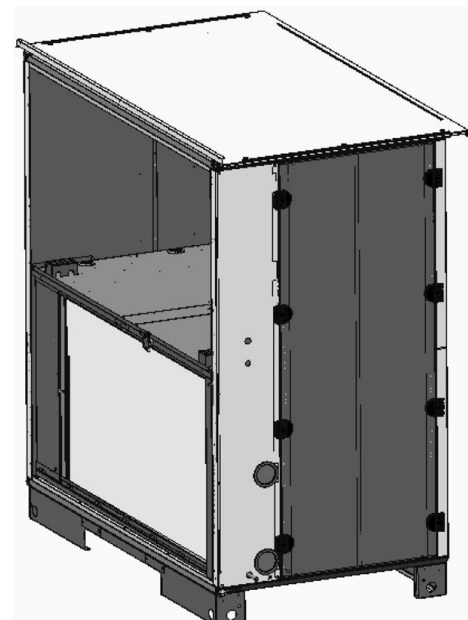
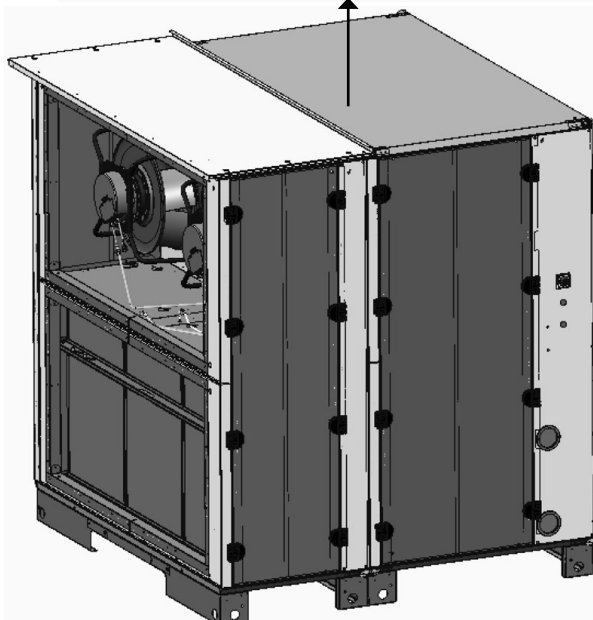
- The Floway RHEZ 10000 & 15000 are delivered in two blocks: a Wheel Block & an FMA Block, with a roof attached to each block
- Procedure for assembling the roof
  1. Remove the roof from the Wheel block (retaining the screw and cap)
  2. Assemble the blocks
  3. Reposition the roof from the Wheel Block, taking care to ensure the roofs interleave correctly
  4. Secure the roof to the block



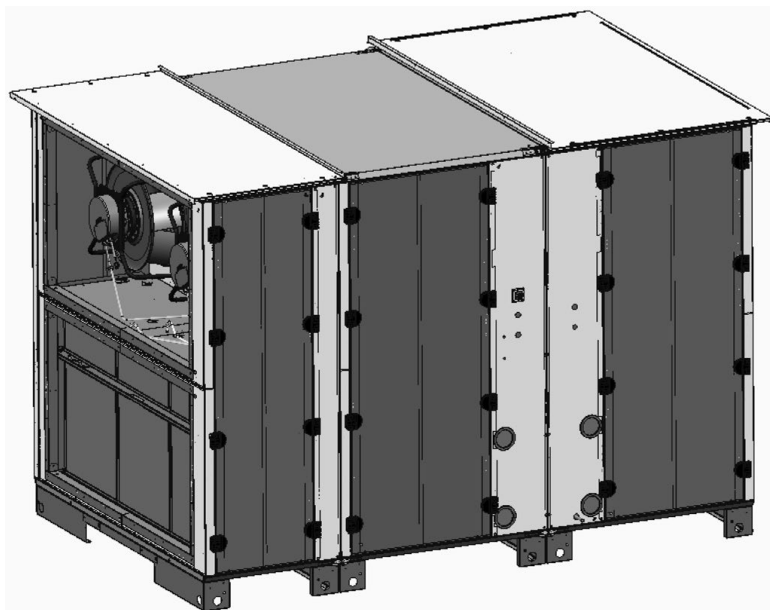
Delivery of two separate blocks: WHEEL Block + FMA Block



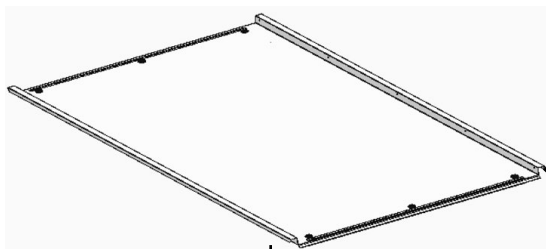
Removal of the WHEEL Block roof



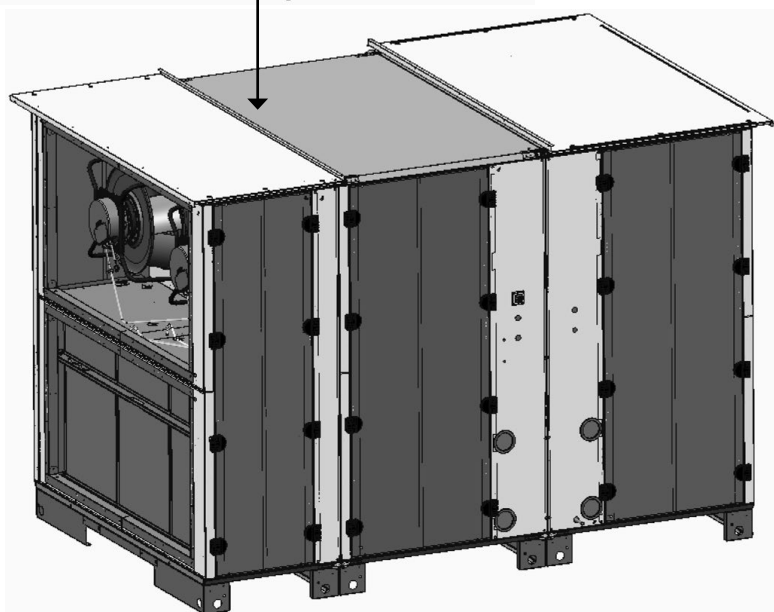
## 5 – INSTALLATION AND INSTALLATION CONNECTIONS



Removal of the WHEEL Block roof

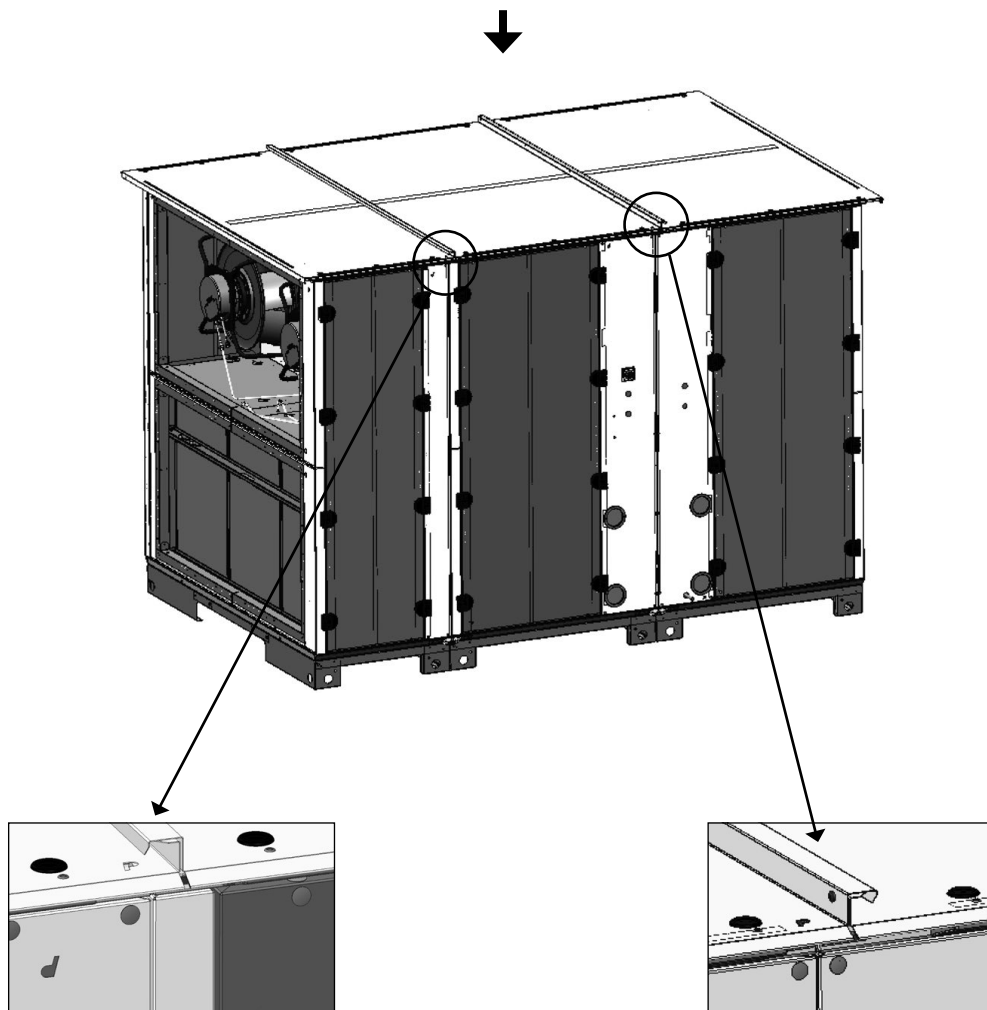


Refitting of the WHEEL Block roof



## 5 – INSTALLATION AND INSTALLATION CONNECTIONS

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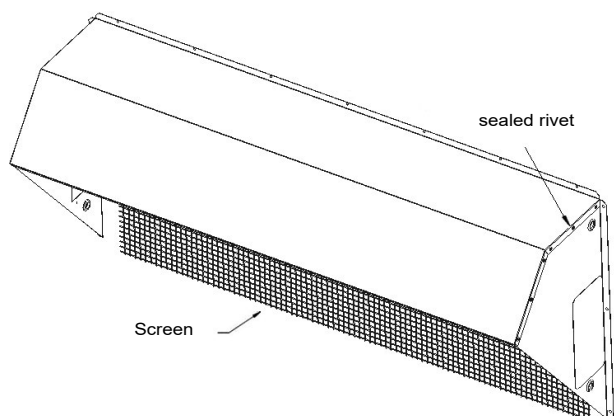


Assembly of the two Blocks with their roofs

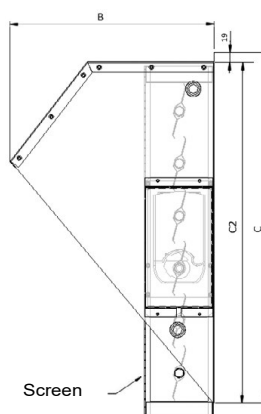
## 5 – INSTALLATION AND INSTALLATION CONNECTIONS

### Fitting the Canopy without damper:

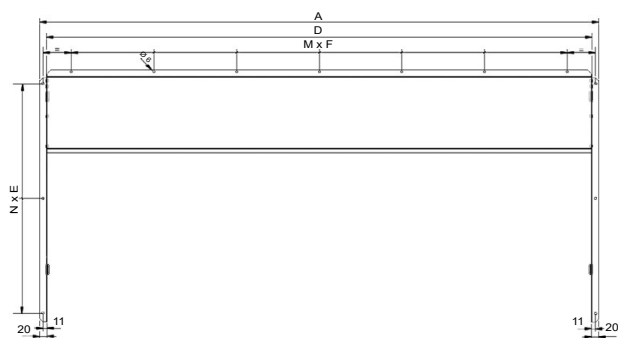
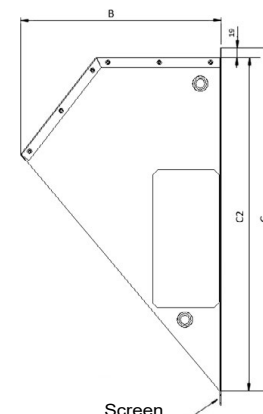
The upper panel will be assembled on the two side panels using screws, washers and nuts or sealed rivets. Also fit the protective screen during assembly, either on the damper or on the panel, as applicable (see illustrations)



Canopy with damper



Canopy without damper



Classic RHE /RHEZ	A	B	C	C2	D	N x E	M x F	Weight (kg)
1000	687	274	329,5	311	650	2X135	-	2,5
2000	787	304	429	411	750,5	2X185	-	3,4
3000	1189	358	580	562	1152	2X260	3X340	5,4
4000 / 5000	1489	390	670	652	1452	2X305	6X220	7
6000 / 7500 / 10000	1789	528	860	842	1752	2X400	5X324	12,2
15000	2050	428	870	851	2013	2X400	6X324	10

## 5 – INSTALLATION AND INSTALLATION CONNECTIONS

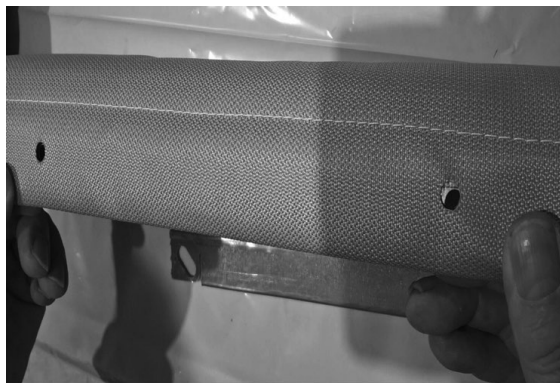
### Flexible sleeve :



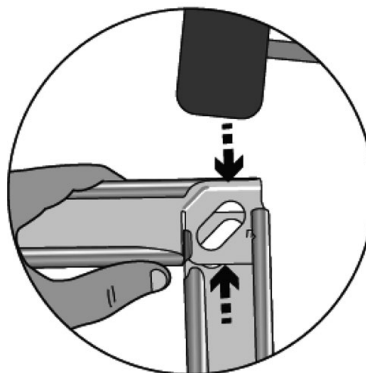
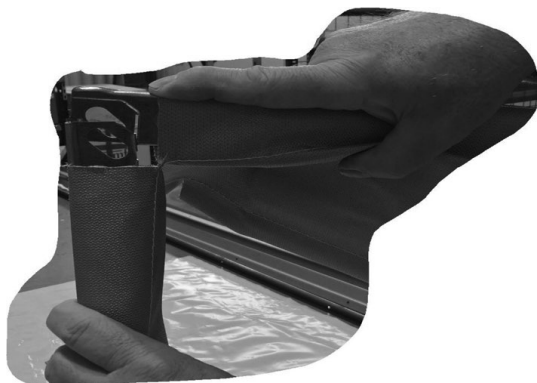
#### COMPOSITION of a flexible sleeve package :

- 1 sewn sleeve casing
- 8 strips to be assembled  
(4 widthways + 4 lengthways)

- 1 Insert the strips into the hems of the sleeve, checking to ensure the holes are aligned:



- 2 Assemble the strips together, first identifying the two lengthways strips and the two widthways strips. Fit them together and strike in turn to seat / Proceed in the same manner for the two sides of the sleeve:



- 3 Fitting on the machine with screws and washers:



# 5 – INSTALLATION AND INSTALLATION CONNECTIONS

## CONNECTIONS

### DIMENSIONS OF AIR FLOW CIRCUITS

#### Floway “Classic PHE” and “Classic RHE/RHE-Z”

	Sizes						
	1000	2000	3000	4000 / 5000	6000 / 7500	10 000	15 000
Connections (mm) air intake and discharge*	201x502	301x601	458x984	608x1284	758x1584	797x1577	807x1907

\* Internal dimensions

#### Vertical FLOWAY PHE

		Sizes		
		700	1200	1600
Ø Connections (mm)	Inlet air	2x160	2x250	2x250
	Air discharge	315	355	400

\* Internal dimensions

#### Additional box

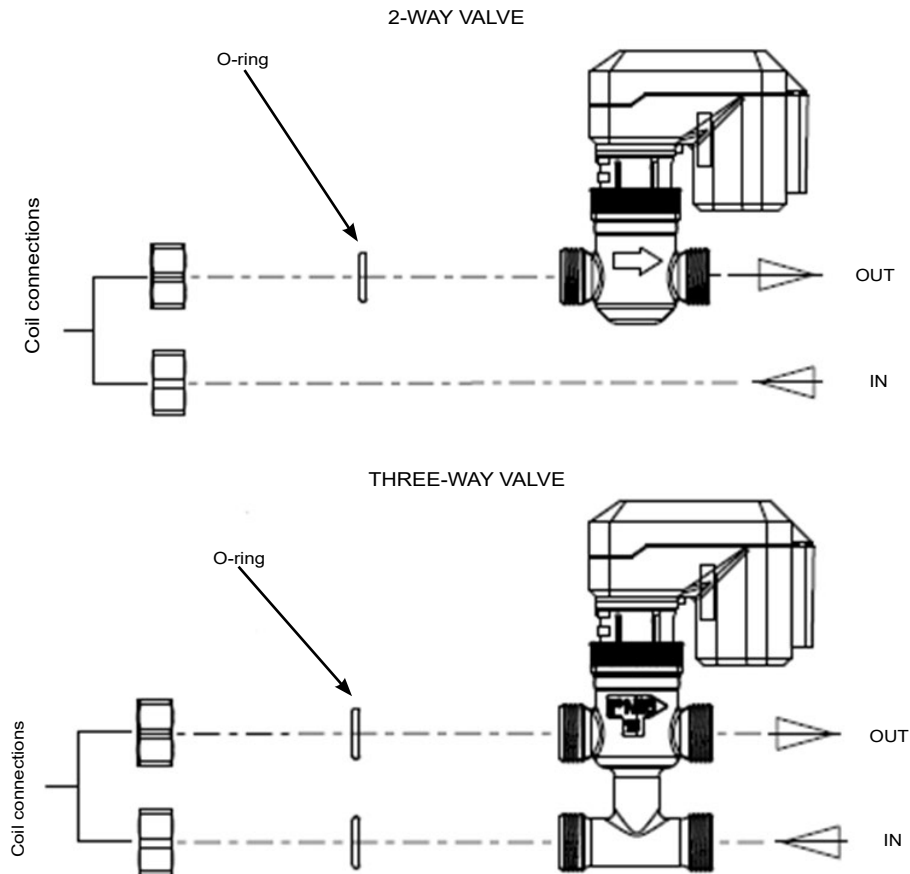
		Sizes				
		1	2	3	4	5
Connections (mm)	Inlet air	201x502	301x601	458x984	608x1284	758x1584
	Air discharge	201x502	301x601	458x984	608x1284	758x1584

\* Internal dimensions

### DIMENSION OF HYDRAULIC CIRCUITS (Internal hydraulic coil and additional box)

#### Valve connection

#### Heating/cooling assembly



The diameter of the condensate tube on all the pans is 16 mm

## 5 – INSTALLATION AND INSTALLATION CONNECTIONS

### FLOWAY "Classic PHE" and "Classic RHE/RHE-Z"

		Sizes								
		1000	2000	3000	4000	5000	6000	7500	10 000 2 rows	15 000 2 rows
Ø connections (mm) 4-way valve	inlet	G 1/2"	G 1/2"	G 3/4"	G 3/4"	G 3/4"	G 1"	G 1"	G 1 1/2"	G 1 1/2"
	outlet (on valve)	G 1/2"	G 1/2"	G 3/4"	G 3/4"	G 3/4"	G 1 1/2"	G 1 1/2"	Rp 1 1/4"	Rp 1 1/4"

		Sizes	
		10 000 4 rows	15 000 4 rows
Ø connections (mm) 3-way valve	inlet	G2"	G2"
	outlet (on valve)	Rp 1 1/2"	Rp 1 1/2"

### sVertical FLOWAY PHE

		Sizes		
		700	1500	2000
Ø connections (mm) 4-way valve	Valve inlet	G 1/2"	G 1/2"	G 1/2"
	Valve outlet	G 1/2"	G 1/2"	G 1/2"

### ELECTRICAL CONNECTIONS

#### FLOWAY "Classic PHE" and "Classic RHE/RHE-Z"

	Sizes								
	1000	2000	3000	4000	5000	6000	7500	10000	15000
Supply type	1~230 V - 50 Hz	3~400 V - 50 Hz							
Nominal current without internal electric heater (A)	5,8	4,2	7	8,6	8,6	10	10	19	24,6
Minimum power supply cable section without electric heater*	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>
Disconnect switch size	OT40(40A)								
Nominal current with internal electric heater (A)	25,4	19,8	25,2	32,8	37,2	42,9	55	91,2	118,4
Minimum power supply cable section with electric heater*	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	4 mm <sup>2</sup>	6 mm <sup>2</sup>	6 mm <sup>2</sup>	10 mm <sup>2</sup>	25 mm <sup>2</sup>	35 mm <sup>2</sup>
Disconnect switch size	OT40 (40 A)	OT40 (40 A)	OT40 (40 A)	OT63 (63 A)	OT63 (63 A)	OT63 (63 A)	OT80 (80 A)	OT100 (100 A)	OT125 (125 A)
Max. terminal section (mm <sup>2</sup> )	10 mm <sup>2</sup>	10 mm <sup>2</sup>	10 mm <sup>2</sup>	35 mm <sup>2</sup>	35 mm <sup>2</sup>	35 mm <sup>2</sup>	35 mm <sup>2</sup>	70 mm <sup>2</sup>	70 mm <sup>2</sup>
Torque Value (N.m)	0,8 Nm	0,8 Nm	0,8 Nm	2 Nm	2 Nm	2 Nm	2 Nm	6 Nm	6 Nm

### Vertical FLOWAY PHE

	Sizes		
	700	1500	2000
Supply type	1~230 V - 50 Hz	3~400 V - 50 Hz	
Nominal current without internal electric heater (A)	6,2	4,2	4,2
Minimum power supply cable section without electric heater*	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>
Nominal current with internal electric heater (A)	25,8	15,9	19,8
Minimum power supply cable section with electric heater*	2,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>
Disconnect switch size	OT40 (40 A)	OT40 (40 A)	OT40 (40 A)
Max. terminal section (mm <sup>2</sup> )	10 mm <sup>2</sup>	10 mm <sup>2</sup>	10 mm <sup>2</sup>
Torque Value (N.m)	0,8 Nm	0,8 Nm	0,8 Nm

\* The minimum cable sections are given as a guideline for a JZ type cable at 30 °C in the open air (outside the duct).

These sections must be calculated taking into account the specifications of each installation (type of fitting, ambient temperature, cable length etc.)



## 5 – INSTALLATION AND INSTALLATION CONNECTIONS

### Additional electrical heater box

	Sizes							
	1	2	2	3	4	4	5	5
Associated model	Classic PHE/RHE/RHEZ 1000 Vertical PHE 700	Vertical PHE 1500	Classic PHE/RHE/RHEZ 2000 Vertical PHE 2000	Classic PHE/RHE/RHEZ 3000	Classic PHE/RHE/RHEZ 4000	Classic PHE/RHE/RHEZ 5000	Classic PHE/RHE/RHEZ 6000	Classic PHE/RHE/RHEZ 7500
Voltage	230 V 1-Ph				400 V 3-Ph			
Current	19,6	10,4	15,6	18,2	24,2	28,6	32,9	45


Requires a specific dedicated power supply

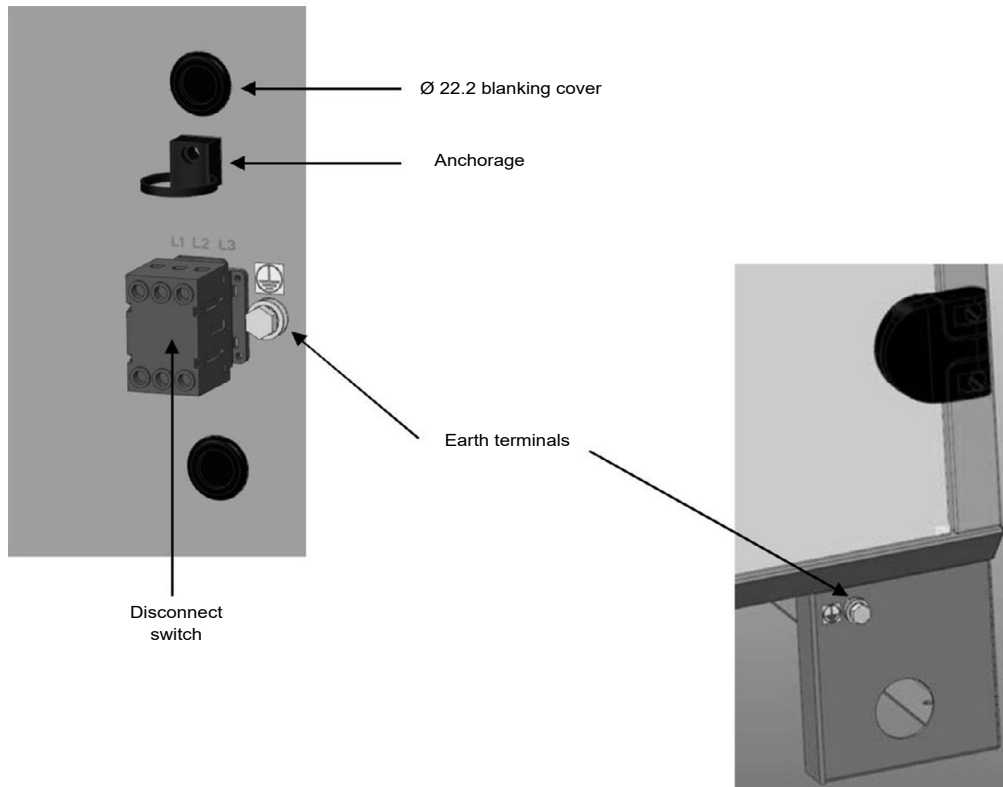
Connect the unit's electrics to the power network as per the tables above.

Connection to the main circuit breaker located inside the box (Ø 22.2 blanking cover provided).

If there is an electric heater in the additional box, make provision for the electrical connections.

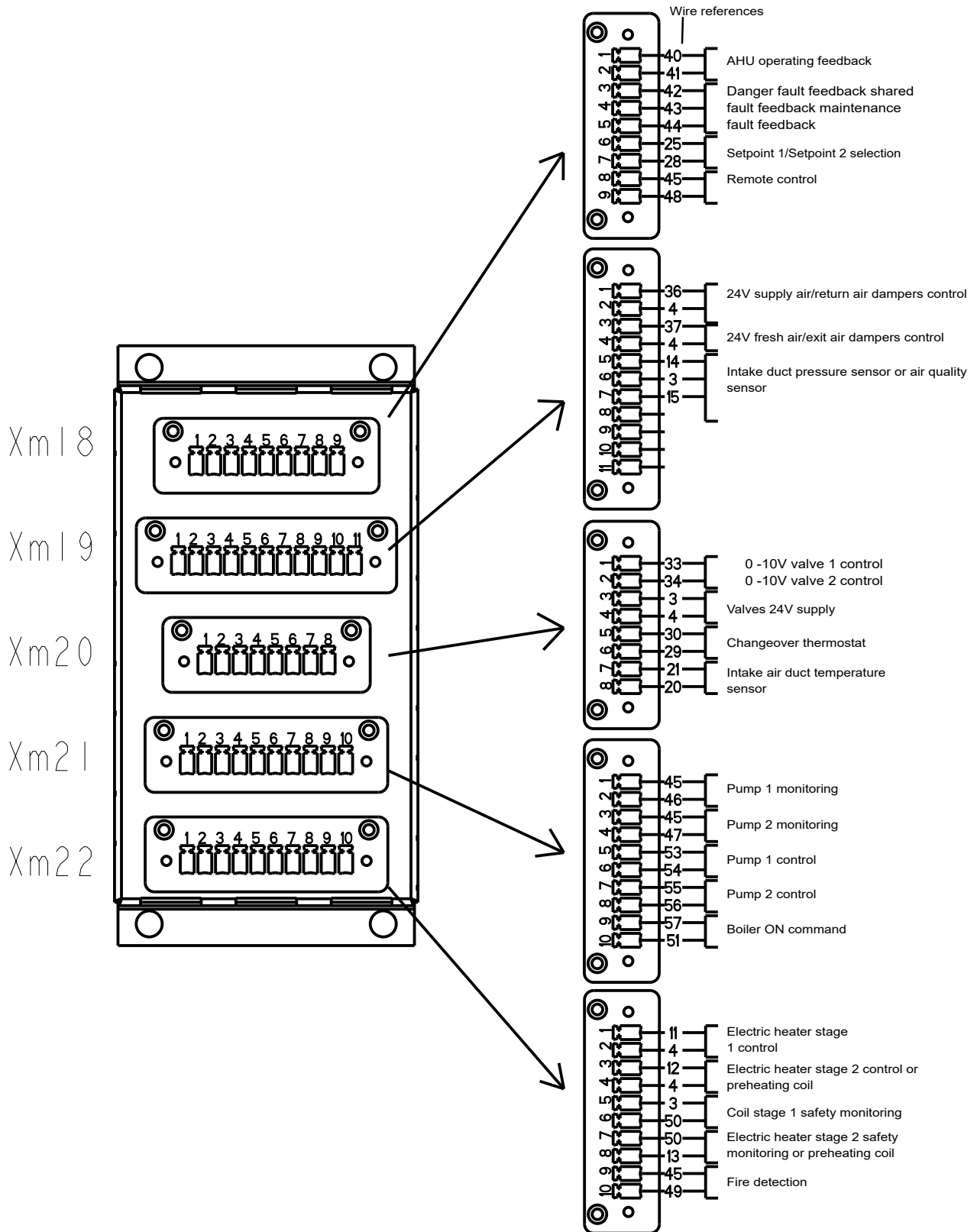
	Sizes				
	1000	2000	3000	5000	7500
Voltage (V)	230 V 1-Ph		400 V 3-Ph		
Max. current (A)	5,4	3,6	6,1	8,8	10,3
Minimum power supply cable section	3G1	4G0.75	4G1	4G1.5	4G1.5
Disconnect switch size	OT40 (40 A)			OT63 (63 A)	
Max. terminal section (mm <sup>2</sup> )	0,75 to 10			1,5 to 35	
Torque Value (N.m)	0,8			2	

- Connect the unit's electrics to the power network as per the table above.
- Connection to the machine's general disconnect switch located inside it (Ø 22.2 blanking cover provided).
- For sections between 0.75 and 2.5 mm<sup>2</sup>, a H 05 VV-F type cable may be used, otherwise the cable must be type H 07 RN-F.
- The power supply cable must be sized in accordance with current standards and regulations.
- The supply cable must be secured using the anchorage provided (located between the disconnect switch and the Ø 22.2 blanking cover). Once the supply cable has been fed through and connect, tighten the clamp fully and cut the end extending past the clamp.
- Respect the current assigned to the disconnect switch for the air handling unit.
- The leakage current may reach 13 mA. Earthing is essential. Each unit is equipped with 2 earth terminals (PE) indicated by the logo , one close to the disconnect switch, and the other on one of the unit's feet. Both terminals must be permanently connected.



# 5 – INSTALLATION AND INSTALLATION CONNECTIONS

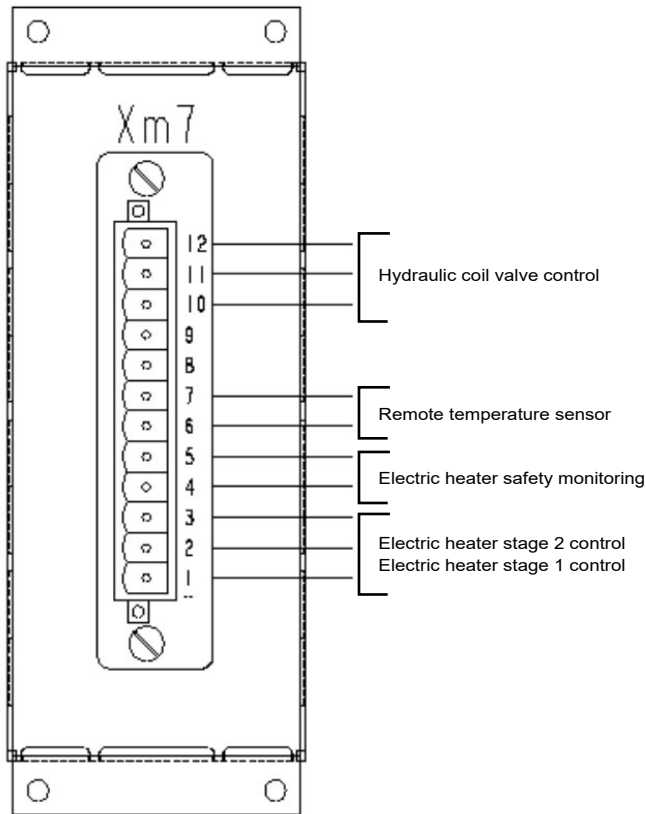
## Identification of terminal strip options for the Classic RHE/RHE-Z, CLASSIC PHE and VERTICAL PHE models.



NB: the maximum cross-section of the stripped wire is  $\varnothing$  1.5 mm and  $\varnothing$  0.5 mm for wire with an end-piece.

# 5 – INSTALLATION AND INSTALLATION CONNECTIONS

## Additional box terminal block references



## Electric heaters

### ► Pre-heats 1 stage: 4 wires

Machine terminal block	Additional box terminal block	Notes	Inlet/Outlet
Xm 22 _ b-3	Xm 7 _ b-1	On/off control 24 VAC	Digital outputs
Xm 22 _ b-4	Xm 7 _ b-2		
Xm 22 _ b-7	Xm 7 _ b-4	Electric heater safety thermostat return Dry contact	Digital inputs
Xm 22 _ b-8	Xm 7 _ b-5		

Remote temperature sensor not connected if there is a pre-heating coil

### ► Pre-heating 1 stage + post-heating 1 stage: 4 + 6 wires

Machine terminal block	Additional box terminal block Pre-heating	Additional box terminal block Post-heating	Notes	Inlet/Outlet
Xm 22 _ b-1		Xm 7 _ b-1	Post-heating ON/OFF control (24 VAC)	Digital outputs
Xm 22 _ b-2		Xm 7 _ b-2		
Xm 22 _ b-3	Xm 7 _ b-1		Pre-heating ON/OFF control (24 VAC)	Digital outputs
Xm 22 _ b-4	Xm 7 _ b-2			
Xm 22 _ b-5		Xm 7 _ b-4	Post-heating safety thermostats return Dry contact	Digital inputs
Xm 22 _ b-6		Xm 7 _ b-5		
Xm 22 _ b-7	Xm 7 _ b-4		Pre-heating safety thermostats return Dry contact	Digital inputs
Xm 22 _ b-8	Xm 7 _ b-5			
Xm 20 _ b-7		Xm 7 _ b-6	Intake air duct temperature sensor NTC10k	Analogue input
Xm 20 _ b-8		Xm 7 _ b-7		

## 5 – INSTALLATION AND INSTALLATION CONNECTIONS

### ► Post-heating 1 stage: 6 wires

Machine terminal block	Additional box terminal block	Notes	Inlet/Outlet
Xm 22 _ b-1	Xm 7 _ b-1	On/off control 24 VAC	Digital outputs
Xm 22 _ b-2	Xm 7 _ b-2		
Xm 22 _ b-5	Xm 7 _ b-4	Electric heater safety thermostat return Dry contact	Digital inputs
Xm 22 _ b-6	Xm 7 _ b-5		
Xm 20 _ b-7	Xm 7 _ b-6	Intake air duct temperature sensor NTC10k	Analogue inputs
Xm 20 _ b-8	Xm 7 _ b-7		

### ► Post-heating 2 stages: 8 wires

Machine terminal block	Additional box terminal block	Notes	Inlet/Outlet
Xm 22 _ b-1	Xm 7 _ b-1	On/off control stage 1 24 VAC	Digital outputs
Xm 22 _ b-2	Xm 7 _ b-2		
Xm 22 _ b-3	Xm 7 _ b-3	On/off control stage 2 24 VAC	
Xm 22 _ b-4	Xm 7 _ b-2		
Xm 22 _ b-5	Xm 7 _ b-4	Electric heater safety thermostat return	Digital inputs
Xm 22 _ b-6	Xm 7 _ b-5		
Xm 20 _ b-7	Xm 7 _ b-6	Intake air duct temperature sensor NTC10k	Analogue inputs
Xm 20 _ b-8	Xm 7 _ b-7		

### Hydraulic coil

#### ► Hydraulic 1: 5 wires

Machine terminal block	Additional box terminal block	Notes	Inlet/Outlet
Xm 20 _ b-1	Xm 7 _ b-12	0 -10V coil valve control 1	Analogue output
Xm 20 _ b-3	Xm 7 _ b-10	24-V valve supply	
Xm 20 _ b-4	Xm 7 _ b-11		
Xm 20 _ b-7	Xm 7 _ b-6	"Intake air duct temperature sensor NTC10k"	Analogue input
Xm 20 _ b-8	Xm 7 _ b-7		

#### ► Hydraulic 2: 5 wires

Machine terminal block	Additional box terminal block	Notes	Inlet/Outlet
Xm 20 _ b-2	Xm 7 _ b-12	0 -10V coil valve control 2	Analogue inputs
Xm 20 _ b-3	Xm 7 _ b-10	24-V valve supply	
Xm 20 _ b-4	Xm 7 _ b-11		
Xm 20 _ b-7	Xm 7 _ b-6	Intake air duct temperature sensor NTC10k	Analogue output
Xm 20 _ b-8	Xm 7 _ b-7		

If there are several coils in the additional box, only connect the "last" temperature sensor to the air supply.

#### ► Presence of changeover coil: 2 wires

Machine terminal block	Notes	Inlet/Outlet
Xm 20 _ b-5	C/O thermostat black wire	Digital inputs
Xm 20 _ b-6	C/O thermostat white wire	

The changeover thermostat must be positioned on the "customer" hydraulic pipe, on the "fluid entering the coil" side (so as to be in the insulation).

Contact open: normal operation in cooling mode

Contact closed: operation in heating mode (contact closed from 28 °C)

If the unit is equipped with an internal hydraulic coil, coil no. 2 in the additional box must be connected to the fast-on connectors provided for this purpose. (see additional box terminal block references)

## 5 – INSTALLATION AND INSTALLATION CONNECTIONS

### ► External generator: 2 wires (Choice: heating or cooling)

Machine terminal block	Notes	Inlet/Outlet
Xm 21 _ b-9	On/off control 24 VAC	Digital inputs
Xm 21 _ b-10		

The ON command is given when the heating/cooling demand is true

### ► Supply air and return air damper control: 2 wires

Machine terminal block	Notes	Inlet/Outlet
Xm 19 _ b-1	Damper opening/closing control 24 VAC	Digital output
Xm 19 _ b-2		

### ► Fresh air and exit air dampers control: 2 wires

Machine terminal block	Notes	Inlet/Outlet
Xm 19 _ b-3	Damper opening/closing control 24 VAC	Digital output
Xm 19 _ b-4		

Relay closed = Damper open (relay normally closed)

Relay opened = Damper closed

### ► Fire detection: 2 wires

Machine terminal block	Notes	Inlet/Outlet
Xm 22 _ b-9	Fire detection activation Dry contact	Digital inputs
Xm 22 _ b-10		

Contact normally closed

### ► AHU operating feedback

Machine terminal block	Notes	Inlet/Outlet
Xm 18 _ b-1	AHU operating feedback Dry contact	Digital output
Xm 18 _ b-2		

### ► Pump 1 monitoring: 4 wires

Machine terminal block	Notes	Inlet/Outlet
Xm 21 _ b-5	ON command Pump 1 24V AC	Digital inputs
Xm 21 _ b-6		
Xm 21 _ b-1	Pump 1 fault monitoring Contact sec	Digital inputs
Xm 21 _ b-2		

Pump 1 ON command if Hydraulic coil 1 operating order

As Xm21 B5-6 is 24 VAC polarised on the Pump1 ON command, provide a 24 VAC relay (50/60 Hz, max 0.75 VA; not supplied by CIAT)

### ► Pump 2 monitoring: 4 wires

Machine terminal block	Notes	Inlet/Outlet
Xm 21 _ b-7	ON command Pump 2 24V AC	Digital inputs
Xm 21 _ b-8		
Xm 21 _ b-3	Pump 2 fault monitoring Contact sec	Digital inputs
Xm 21 _ b-4		

Pump 2 ON command if Hydraulic coil 2 operating order

As Xm21 B7-8 is 24 VAC polarised on the Pump2 ON command, provide a 24 VAC relay (50/60 Hz, max 0.75 VA; not supplied by CIAT)

# 5 – INSTALLATION AND INSTALLATION CONNECTIONS

## ► Remote On/Off: 2 wires

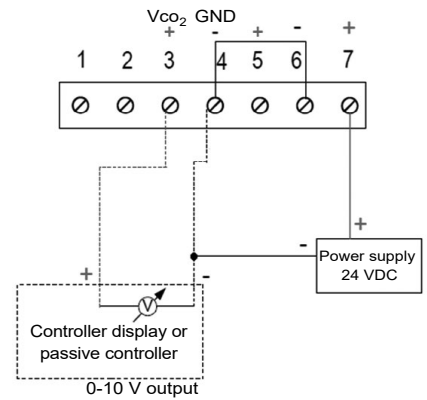
Machine terminal block	Notes	Inlet/Outlet
Xm 18 _ b-8	Unit ON/OFF monitoring Dry contact	Digital inputs
Xm 18 _ b-9		

## ► Setpoint 1/setpoint 2 selection: 2 wires

Machine terminal block	Notes	Inlet/Outlet
Xm 18 _ b-6	Dry-contact setpoint selection	Digital output
Xm 18 _ b-7		

## ► Air quality sensor: 3 wires

Machine terminal block	Notes	Inlet/Outlet
Xm 19 _ b-5	Shared	
Xm 19 _ b-6	Sensor 24V supply	
Xm 19 _ b-7	CO2 sensor/transmitter 0-10 V active rear sensor	Analogue input

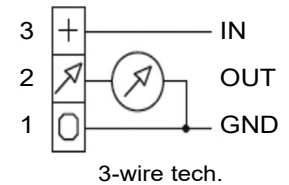


## ► Fault feedback: 4 wires

Machine terminal block	Notes	Inlet/Outlet
Xm 18 _ b-3	"Danger" fault monitoring Dry contact (shared b-4)	Digital outputs
Xm 18 _ b-4	Shared	
Xm 18 _ b-5	"Maintenance" fault monitoring Dry contact (shared b-4)	

## ► Intake duct pressure sensor: 3 wires

Machine terminal block	Notes	Inlet/Outlet
Xm 19 _ b-5	Shared	
Xm 19 _ b-6	(IN) sensor 24V supply	
Xm 19 _ b-7	(OUT) pressure monitoring signal 0-10 V	Analogue input



## INSTALLING THE SIPHON ON CONDENSATE DRAINS

It is important to ensure the siphon is correctly fitted, as per the diagram below. For a depression H in the condensate drain, the sizing of the siphon must incorporate dimensions of 2H.

### Schematic diagram of siphon

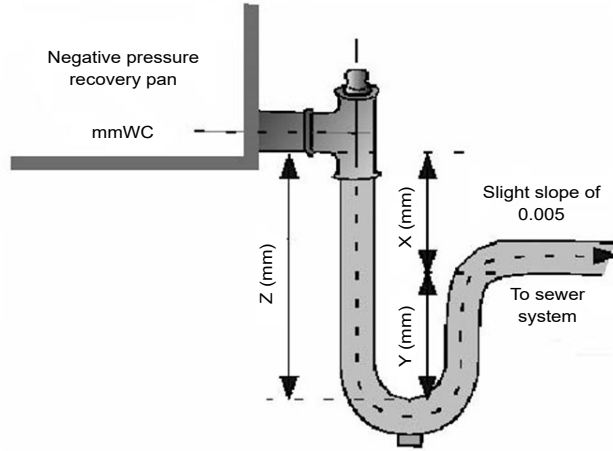
# 5 – INSTALLATION AND INSTALLATION CONNECTIONS

## Assembly with depression :

Z: X+Y+tubing diameter + insulation thickness

Y:  $Y = 0.5 * X$

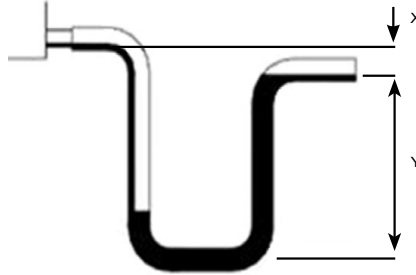
X: X = 25 mm for each 250 Pa of negative static pressure + 25 mm



## Assembly with pressure:

X = 12 mm

Y = 12 mm + total static pressure (1 mm for 10 Pa)

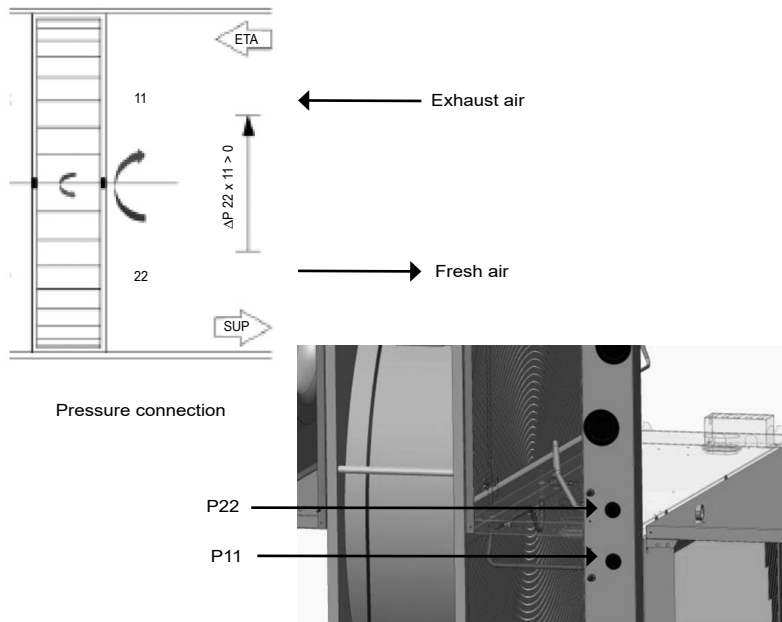


**NB:** the condensate pan on the heat recovery unit is pressurised on the “Vertical PHE” model, and is also pressurised if there is a cooling or mixed coil in the additional casing.

## 5.3 - FLOWAY CLASSIC RHEZ / VERIFICATION OF PRESSURES

### Verification of the pressures for EATR limitation :

- The limitation of the EATR value depends on the size of the installation and, specifically, the pressure drop on the exhaust air duct
- The presence of a manual control damper may however prove necessary to balance these pressures correctly (damper not supplied by CIAT): contact the installation’s design engineer
- This verification is used to adjust the installation so that any inclusion of exhaust air in the fresh air during recirculation is avoided
- The Floway Cassic RHE-Z is equipped with pressure connections P11 and P22 for diagnostics as follows:



## 5 – INSTALLATION AND INSTALLATION CONNECTIONS

- This translates as  $\Delta P_{22-11} > 0$  (for example:  $P_{22} = -300 \text{ Pa} \rightarrow P_{11} = -350 \text{ Pa}$ )
- Ideally, the minimum value between  $P_{22}$  and  $P_{11}$  should be 20 Pa
- The pressure should be lower at  $P_{11}$  as per the above; if not the case, adjust the damper or dampers present in the return air duct

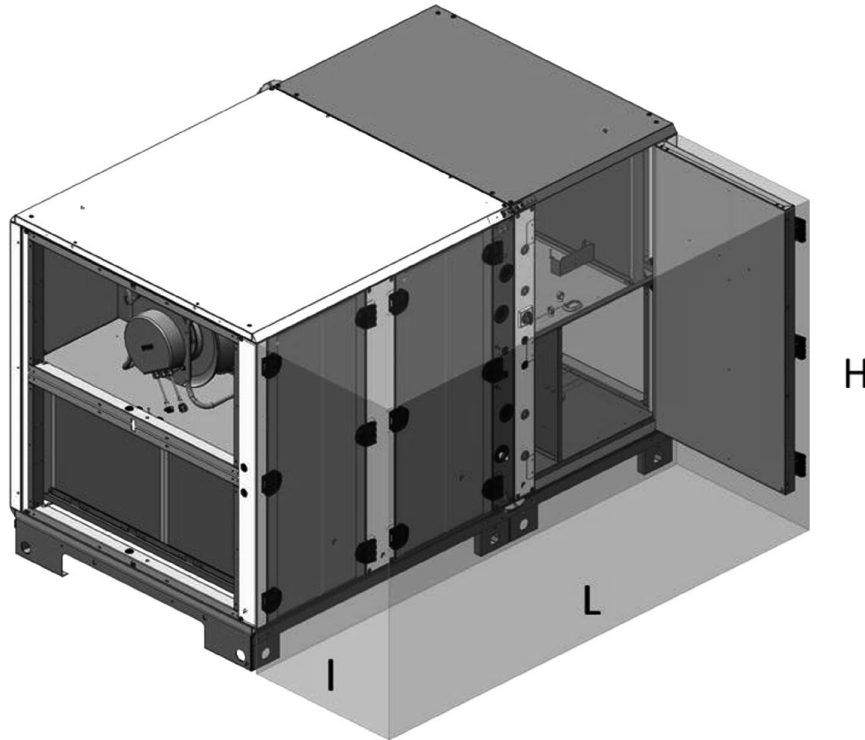
### 5.4 - MAINTENANCE / SPACE IN FRONT OF THE UNITS

Ideally, for all simple and complex maintenance work (removal of the exchanger, coils, etc.), sufficient free space should be left at the front to perform these operations:

L = machine length

H = operator height for small models / machine height for Sizes > 6000

	1000	2000	3000	4000/5000	6000/7500	10000	15000
I	700	900	1100	1400	1700	1800	2100



## 6 - SYSTEM START-UP



**Commissioning must be performed by qualified personnel, trained in air handling technology. Keep all inspection doors closed while the unit is operating.**

Once the electrical and hydraulic connections have been finished, the commissioning of the unit can proceed, checking the steps below:

- Check the tightness of all connections,
- Make sure that the inside of the unit is clean, and that there are no foreign bodies inside it,
- Check the wiring
- Check the electrical supply voltage and the ratings of the overload protections against the current ratings of each component,
- To configure the setpoints, refer to the corresponding manual (N09.61),
- Simulate activation of the various electric components, controlled components and alarms,
- Check the currents:
  - Temperature alarm,
  - Air flow alarm,
  - Fan motor assembly
- Check the air flow rates
- After a few hours' operation, check the filter fouling condition.

### REGULATION: FLOWAY CONTROL

To set and configure the "Floway Control", refer to the corresponding manual (no. 7565703).



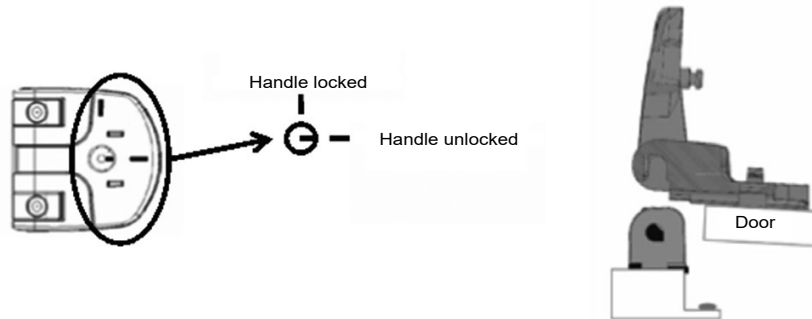
## 7 - MAINTENANCE/SERVICE INTERVALS



Switch off the electrical supply to the air handling unit before carrying out any work

### Details of hinges/handles: Allen key locks, size 4

When they are unlocked, the handles are in "hinge" mode. It is possible to unlock a single row of handles to open like a conventional door. If all of the handles are unlocked, the door can be removed.



### 7.1 - FILTERS

After commissioning, the speed of filter fouling will depend on the care taken when cleaning the air flow circuits. Hence the frequency of filter checks should be increased during this period.

#### Maintenance intervals

The filter life depends essentially on the amount of dust in the air and the efficiency of the filtration system. The filtration quality cannot be maintained if the filter medium has been damaged during maintenance. We recommend that the filters be replaced once every two years, even in the case of moderate use

#### Filter replacement method

During filter maintenance operations, it is important not to spread the dust that has accumulated in the filters.

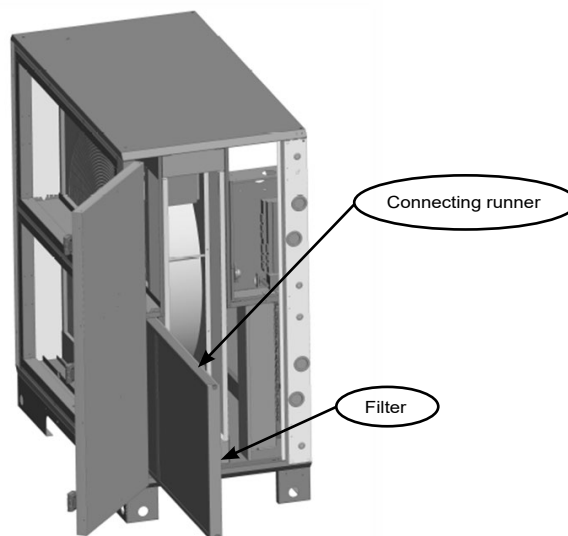
Shut down the unit,

Access the filters by opening the door panels,

Simply pull on the filters

Pull the connecting runner (on Floway Classic PHE and RHE/RHE-Z  $\geq 3000$  m<sup>3</sup>/h models), then you can remove the filters. For the other models, simply pull directly on the filters.

#### Example: Floway "Classic PHE"



## 7 - MAINTENANCE/SERVICE INTERVALS

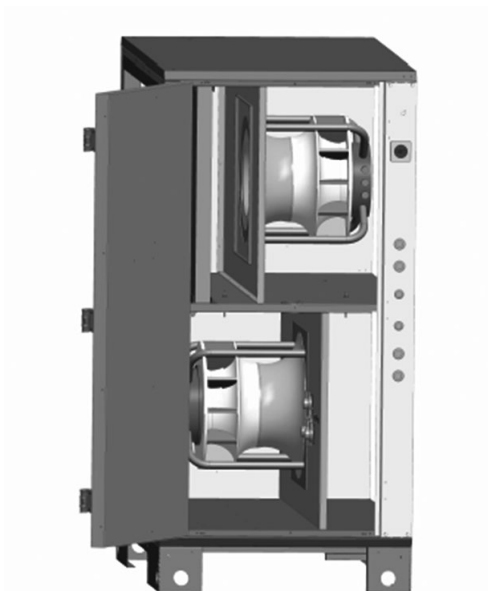
### 7.2 - FAN MOTOR ASSEMBLY

Check and retighten the electrical connections once a year.

#### Removing the fan

Open the door as explained above,  
 Unlock the 4 x M8 screws using the ratchet wrench and its extension,  
 Disconnect the motor's electrical connections,  
 Remove the fan via the access door.

#### Example: Floway "Classic PHE"



### 7.3 - HEAT RECOVERY UNIT

#### Plate heat exchanger ("Ceiling PHE", "Vertical PHE" and "Classic PHE" models)

Schedule annual dust removal / degreasing and maintenance of the bypass damper.

It is important to remember to clean and degrease the condensate drain pan using water and non-abrasive detergents:

The heat recovery unit on the "Vertical PHE" model is accessible via the door and can be removed by the sliding runner.

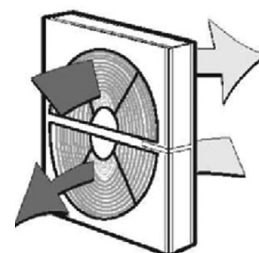
#### Rotary heat exchangers ("Classic RHE/RHE-Z" model)

Check the maximum and minimum rotation speeds once a year.

When stationary, the rotary heat exchangers accumulate dust and moisture at their lowest point. Schedule cleaning during prolonged stoppages.

Check the permanently lubricated bearings once a year.

#### Heat recovery unit drive unit consumption



		Sizes								
		1000	2000	3000	4000	5000	6000	7500	10 000	15 000
Variable speed	Max. power (W)	110	110	110	110	110	110	240	240	240
	Voltage (V)	1 x 230 V								

### 7.4 - ELECTRICS BOX

Retighten the connections twice a year.

Visually inspect the components, wires and cables.

## 7 - MAINTENANCE/SERVICE INTERVALS

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### 7.5 - ELECTRIC HEATERS

The electric heater requires very little maintenance. However, the following checks are necessary:  
Visually inspect the heating elements, wires and connection cables after every 1500 hours of operation.  
Check and retighten the connections once or twice a year.

### 7.6 - HYDRAULIC COILS

The hydraulic coil requires very little maintenance as it is protected by the filter.

### 7.7 - SERVICE INTERVALS

Regular maintenance will keep the unit running at optimum performance. The values given in the table below are provided for guidance only. They do not take into account individual factors that can lengthen or shorten the unit's service life.

## 8 - PROBLEMS/CAUSES/SOLUTIONS

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Refer to the "Floway Control" control manual N09.61.

Components	At commissioning	2 to 3 months	12 months	Operating readings
Filters		Check the fouling level and replace if necessary	Replace	
Fans	Check the connections		Retighten the connections	
Electrics box	Check the connections	Operating check	Retighten the electrical connections Check the components Operating check	
Pressure/temperature sensor	Check correct operation and setpoint adjustment	Check correct operation and setpoint adjustment	Check correct operation and setpoint adjustment	
Condensate pan		Clean with water and a <b>non-abrasive</b> detergent	Clean with water and a <b>non-abrasive</b> detergent	

## 9 - TESTS AND GUARANTEES

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To guarantee the product's quality, each Floway air handling unit undergoes a variety of tests: EMC (electromagnetic compatibility) test, component functional tests (fan motor assembly, heat recovery unit, sensor, etc.).

However, our units are guaranteed for a period of 12 months from the commissioning date, when this date occurs within three months of the invoice date.

It is effective for a period of 15 months from the unit invoice date in all other cases.

CIAT's guarantee on motors is limited to the terms of guarantee extended by its supplier.

Under no circumstances must the fitter carry out work on the motor. This will invalidate any future claims on the warranty.

**NB:** for more information, refer to the application of the CIAT warranty.

